May 2015

195 FIFTEENTH AVENUE, WEST HOXTON

Preliminary Environmental Site Assessment for Commercial Precinct

Submitted to:
Western Sydney Parklands Trust
Level 7, 10 Valentine Avenue
Parramatta NSW 2150

REPORT

Report Number. 147622023_001_R_Rev2

Distribution:

Western Sydney Parklands Trust
Golder Associates Pty Ltd

Golder Associates

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1.0 INTRODUCTION

1.1 Background

This report presents the results of an environmental assessment conducted by Golder Associates Pty Ltd (Golder) for the proposed commercial precinct at West Hoxton. The work was authorised by Tim Ireson of Western Sydney Parklands Trust (WSPT) in an email dated 19 June 2014. The work was conducted in general accordance with our proposal P147622044-001-P-Rev0, dated 23 May 2014.

The proposed development site is located approximately 8 km to the west of the Liverpool CBD. Based on the supplementary information that WSPT supplied with the request for proposal and subsequent correspondence, investigations were required for five separate lots (the "study area", comprising Lots 304 to 306 DP 2475, Lot 346 DP 2475 and Lot 2 DP 307334).

This report outlines the preliminary environmental assessment of Lots 304 to 306 and Lot 345 in DP 2475 and Lot 2 DP 307334 (the study area). The geotechnical component of this investigation is described in Golder report 147622023-R-002-Rev0 dated 23 April 2015.

A portion of the study area coincides with the "site", which is defined as Lots 345 and 346 in DP 2475 and Lot 2 in DP 307334. Lot 346 in DP 2475 has been investigated under separate cover (Golder report 147622023-004-R-Rev0 dated March 2015). The site, which has an approximate area of 4 hectares, is proposed to be redeveloped as a State Significant Development and will include the following components:

- Service station.
- Retail pad site.
- Supermarket.
- Large format retail.
- Retail/commercial.
- Child care facility.

The location of the study area in relation to the surrounding area is shown on Figure 1. A sketch of the proposed development of the site (Ref: 2014-4330 -u/c, dated 04/02/15) provided by WSPT and is included as Figure 2.

1.2 Objectives

The objectives of the environmental assessment were to Address Item 13 of the Director General's Requirements (DGRs) and to take into consideration items raised by the New South Wales Environment Protection Authority (EPA).

- Item 13 of the DGRs is reproduced below:

  13. Contamination

  - *Provide a preliminary site assessment, and further detailed site assessments and remedial action pans (if applicable), to demonstrate that the site is suitable, or can be made suitable, for the proposed use in accordance with SEPP 55; and*

  (Stage 1)

  - *Identify measures for the management and disposal of any hazardous materials from the demolition/removal of existing buildings/structures (including dams).*

  Relevant Policies and Guidelines:
  EPA Guidelines, under the Contaminated Land Management Act.

- Items raised by the EPA included:

Contaminated Land
The EPA recommends that the DGRs include a requirement to demonstrate the site is suitable or can be made suitable for the proposed landuse. This should include the preparation of a Preliminary Site Assessment, and if this indicates that contamination may be present on site, a Detailed Site Assessment. The assessments must be prepared in accordance with the guidelines made or approved under section 105 of the Contaminated Land Management Act 1997 and administered by the EPA.
Management of existing dam
The EPA notes that there is an existing dam currently located on the site that will need to be drained to facilitate development of the site. The EPA recommends that the DGRs require the proponent to identify the proposed management strategies for this dam, including:

- *The contamination status of sediment with the dam and the proposed management strategy for this sediment; and*
- *An assessment of water quality within the dam, and a proposed strategy for disposal of this water in accordance with the Protection of the Environment Operations Act 1997.*

- The environmental assessment was to provide comment on the potential for the presence of Acid Sulphate Soils (ASS).

1.3 Scope

The scope of work comprised the following:

- An assessment of the historical and current conditions at the study area that could have resulted in contamination of surface water, soil or groundwater at the study area.

The scope of work includes the following components.

1.3.1 Records Review

The following records were obtained and reviewed where relevant and readily available:

- Third Party Records
  - Current and historical Certificates of Title within the New Titles System to provide a history of ownership and land use.
  - Selected aerial photographs and on-line aerial imagery of the study area from the years 1955 to 2012 obtained from the NSW Department of Land and Property Information to provide evidence of the history of development of the study area and indications of potential sources of contamination.
  - Certificates issued by local Council under Section 149(2)&(5) of the *Environmental Planning and Assessment Act 1979* to confirm zoning and restrictions on approved land uses.
  - Historical Licences for the Keeping of Dangerous Goods and Notifications for the Keeping of Dangerous Goods held by WorkCover NSW for the study area.
  - Advice from the NSW Environment Protection Authority (EPA) for information on environment protection licences (including associated notices and other regulatory action) issued under the *Protection of the Environment Operations Act 1997* and list of contaminated sites notified to the NSW EPA and records of notices issued by the NSW EPA under the *Contaminated Land Management Act 1997*.
  - Search for details of groundwater bores registered on the groundwater bore database maintained by the NSW Office of Water and located within 500 metres (m) of the study area.
  - Published topographical, geological and soil maps of the area.

1.3.2 Study Area Inspection

An inspection of the study area was undertaken by Golder on 24 June 2014 to provide further information, via visual inspection, of potential sources and areas of contamination.

A drive-by inspection of neighbouring properties was undertaken to identify the presence and proximity of sensitive receptors which could be significantly impacted upon by the study area, and off-site operations which could have a significant negative impact on the study area.

1.3.3 Interviews

A discussion was held with the tenant (Mr Felice Bischetto) who has occupied the study area since 1970 to obtain an understanding of current and previous activities on the study area that may have resulted in contamination of structures on the property or the ground, groundwater or surface water of the study area, or create a material risk for such contamination to occur.

Unless otherwise stated in this report no approach was made to regulatory authorities beyond the information searches identified in this proposal.

2.0 STUDY AREA DESCRIPTION

The characteristics of the study area presented in the following sections are based on a walkover inspection and a review of available documents.

2.1 Study Area Location and Setting

A Site location plan is presented in Figure 1 attached. Study area details are summarised below provided in Table 1.

Table 1: Study Area Location and Setting

Item	Details	Source
Current Owner	Western Sydney Parklands Trust	Certificate of Title
Street Address	195 Fifteenth Avenue	NSW LPI Six Maps
Suburb, State, Postcode	West Hoxton, NSW, 2171	NSW LPI Six Maps
Legal Description	Lot 304 in DP 2475 Lot 305 in DP 2475 Lot 306 in DP 2475 Lot 346 in DP 2475 Lot 2 in DP 307334	Request for Director General Environmental Assessment Requirements, Commercial Development Fifteenth Avenue, West Hoxton McKenzie Group, February 2013 (McKenzie 2013)
Council and Current Zoning	Liverpool City Council WSP SEPP Western Sydney Parklands	Section 149 planning certificate Liverpool Local Environment Plan 2008
Study Area	7.7 hectares (approximately)	NSW LPI Six Maps
Buildings or Structures	One house and three large sheds	Visual inspection
Surrounding Land Use	North: Roadway (Flynn Avenue) and then poultry sheds South: Roadway (Fifteenth Avenue) and then mixture of commercial and residential land use East: Bus depot and grass land on former market garden land use West: Roadway (Twenty Seventh Avenue), water supply channel and then market gardening	Study area inspection and nearmap aerial photographs

The study area is predominately grassland with stands of native vegetation in the northern portion of the study area. The highest point on the study area is the north eastern portion and the land slopes downwards towards a dam in the south western corner. The study area is mostly undeveloped with a residence and light commercial/industrial development in the southern portion. It appears some areas of the study area have previously been used for market gardens particularly in the east and southern part of the study area. There appears to have been some deposition of imported fill material (soil and crushed concrete to form a base for sheds and storage areas in the south east part of the study area. Cut and fill earthworks appear to have been undertaken to form the three water storage dams on the study area (two small, one large) and the area currently used for stockpiling manure in the centre of the study area. Three dams were observed with the largest being in the south western corner of the study area, another small dam north west of the larger dam and a small area retaining water (possible dam) on the northern part of the study area.

The study area is currently occupied by a construction contractor and manure packaging business. The area to the north of the existing cottage residence located in the south east corner of the study area appears to be used by the construction contractor for the storage of formwork and concreting equipment. An area on the middle part of the study area contains stockpiles of manure and other organic material.

2.2 Topography and Drainage

The Liverpool 1: 25,000 topographic sheet 9030-II-S (Central Mapping Authority of NSW) indicates the study area has an elevation of approximately 100 metres Australian Height Datum (m AHD) at the north-eastern corner of the study area, reducing to approximately 90 m AHD at the south-western corner of the study area.

The study area predominantly slopes to the south-east corner, draining into the main water storage dam on the study area. Two smaller dams near the western boundary of the study area also collect drainage from two smaller drainage lines within the study area.

2.3 Geology and Hydrogeology

A review of the 1:100,000 scale Penrith Geological Series Sheet 9030 (Geological Survey of New South Wales) indicates that the study area is located in an area mapped with Bringelly Shale as the underlying formation. Bringelly shale comprises shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff. Outcrops of Potts Hill Sandstone were observed in the north eastern portion of the study area during the walkover inspection.

Review of the 1:100,000 scale Penrith Soil Landscape Series Sheet 9030 (Soil Conservation Service of New South Wales), indicates the study area is located in an area belonging to the Luddenham soil landscape. The sheet describes the landscape as undulating to gently rolling hills with local relief of between 50m to 80m and slopes between 5% and 20%. Typical soils of this landscape are shallow dark podzolic soils or massive earthy clays on crests, moderately deep red podzolic soils on upper slopes and moderately deep yellow podzolic soils and prairie soils on lower slopes and drainage lines.

An on-line search of acid sulfate soil (ASS) risk maps on the Australian Soil Resource Information System (ASRIS) performed in June 2014, maintained by CSIRO, showed the study area as being in an area of “No Known Occurrence” of ASS. ASS are generally only expected at elevations of less than 5 m AHD in coastal areas (RTA, 2005), and are not expected at the study area due to its elevation of approximately 90 to 100 m AHD.

The soils at the study area have been modified by historical market gardening activities in the centre and east of the study area and by cut and fill earthworks to form the three dams and the area used for manure stockpiling in the centre of the study area. Imported fill material (soil and crushed concrete) has been placed in the south-east corner of the study area to form a level pad for a shed and storage area.

A groundwater bore records search conducted through the NSW Natural Resource Atlas in June 2014 indicates that there are no registered groundwater bores located within 500 metres of the study area. The closest registered bore is located on the grounds of the Thomas Hassall Anglican College located approximately 550m to the north east. The bore was licensed as a test bore. Groundwater bearing zones were observed at approximate depths of 60m, 160m and 190m below ground level.

Groundwater is generally inferred to flow across the study area in a south-westerly direction following the topography.

A copy of the bore search results is included in **Appendix A**.

3.0 HISTORICAL RECORDS REVIEW

The following section presents a summary of the study area's historical information reviewed as part of the assessment. The historical review was completed to develop a general understanding of the study area and surrounding area (within 500 metres), with the intention of identifying previous activities on, or nearby, the study area which may represent an issue of potential environmental concern.

3.1.1 Aerial Photographs

Historical aerial photographs for the study area and surrounding area from 1955, 1961, 1970, 1978, 1994 and 2002 were obtained from the NSW Land and Property Management Authority for review. An aerial photograph from 2012 was observed via Six Maps (https://maps.six.nsw.gov.au). Copies of the aerial photographs referenced above are included in **Appendix B**. The aerial photograph review was conducted to ascertain a general history of the development of the study area and surrounding area (within approximately 500 m). This review is summarised in **Table 2**.

Table 2: Historical Aerial Photograph Review

Year	Scale	Comment	
1955		Study area	The study area was cleared land, and may have been in use for grazing purposes. Scattered trees were present along the northern boundary (the Flynn Avenue frontage). A small dam was present on the western side of the study area, to the north of Browns Reserve (the current Lot 1 in DP307334).
		Surrounding area	Fifteenth Avenue and Twenty Seventh Avenue were visible, but appeared to be unsealed. Flynn Avenue had not been formed. The existing water supply channel was present to the west of Twenty Seventh Avenue. A number of small structures, assumed to be a residential dwelling and sheds, were visible on the location of Browns Reserve. A number of structures, which appeared to include a residential cottage and shed, were visible on the adjoining property to the east (currently occupied by the Bus Depot). Two additional objects, consistent with the size and shape of a bus, were visible on this site. A number of apparent residential dwellings and associated outbuildings were located on the southern side of Fifteenth Avenue in the location of the existing shops. Sheds were visible on nearby properties to the north of the current Flynn Avenue and to the west of the water supply channel. The structures were consistent with poultry farming activities. Evidence of market gardening was present on lots further to the east, southeast and west of the study area.
1961		Study area	The study area was similar in appearance to that shown in the 1955 aerial photograph.
		Surrounding area	The surrounding area was generally similar in appearance to that shown in the 1955 aerial photograph. An increased number of buses were observed on the Bus Depot site to the east. The number of residential type structures on the southern side of Fifteenth Avenue opposite the study area had increased, as had the extent of land in the vicinity of the study area that appeared to be under cultivation for market gardens. Additional sheds had been constructed on the assumed poultry

Year	Scale	Comment	
			farm located on the northern side of the current Flynn Avenue.
1970		Study area	A structure was present in the south east corner of the study area in the location of the existing cottage. An apparent depression was present in the south western section of the study area in the area of the existing large dam. Evidence of market gardening was visible between the depression and the structure along the southern boundary of the study area and along the eastern boundary of the study area.
		Surrounding area	Flynn Avenue to the north of the study area had been formed. An increased number of buses were observed on the Bus Depot site to the east. A structure consistent with that observed on the service station (less the forecourt awning) at 198 Fifteen Avenue (opposite the Bus Depot) during the walkover inspection. Godfrey Avenue was visible further to the south of the study area, with an increased number of residential type structures in the area. Additional sheds had been constructed on the assumed poultry farm located on the northern side of the current Flynn Avenue.
1978	1:16,000	Study area	A shed was visible to the north of the cottage. Evidence of a hard stand or similar area was present to the west of the cottage and shed.
		Surrounding area	The surrounding area was similar in appearance to that shown in the 1970 aerial photograph.
1994	1:25,000	Study area	The south eastern corner of the study area had changed extensively since the previous aerial photograph. This portion of the study area appeared to have a number of storage structures and other objects on a hardstand area. There was evidence of market gardening activities having occurred on the eastern side of the study area. Additional tree cover was evident in the north western portion of the study area. Stockpiled material was present in the middle section of the study area in the location of the stockpiled manure observed during the walkover inspection.
		Surrounding area	Further commercial type structures were visible on the southern side of Fifteenth Avenue opposite the study area. The awning observed at the service station site during the walkover inspection was visible in the aerial photograph. Additional residential type development was present further to the south.
2002	1:25,000	Study area	Market gardening appeared to be occurring on the eastern and central part of the study area. An additional shed appeared to be present to the west of the cottage. The existing large dam on the study area appeared to be mostly full of water.
		Surrounding area	Further commercial type structures were visible on the southern side of Fifteenth Avenue opposite the study area.
2012 (SixViewer)		Study area	The study area was generally similar in appearance to that shown in the 2002 aerial photograph, with additional tree cover was evident in the north western portion of the study area.
		Surrounding area	The surrounding area was similar in appearance to that shown in the 2002 aerial photograph.

The aerial photograph review of the study area and surrounding area indicates that the study area had been cleared for agricultural land use prior to 1955. Market gardening activities had taken place on the eastern part of the study area from prior to 1970, with market gardening also occurring in the central portion of the study area to the north of the large dam. Stockpiled material was visible in the middle of the study area from 1994 onwards, indicating the manure processing activities currently occurring on the study area had been taking place from at least that time. The aerial photographs did not indicate that large scale filling of the study area had occurred.

3.1.2 Certificates of Title

Certificates of Title obtained from the Land and Property Information NSW (through VJ Ralph & Co. City Legal Services) were reviewed in order to identify a history of ownership of the study area. The current Certificate of Title for the study area is Auto Consol 4471-48[1]. Land parcels which comprise this Title include land which is not included in the study area (i.e. Lot 307 in DP 2475).

A summary of the historical ownership is presented in **Table 3**. Copies of the Certificates of Title are included as **Appendix C**.

Table 3: Summary of Land Title Information

Ownership Period	Certificate of Title Reference	Property	Comments
1895 to 1930	Vol 1156 Fol 193	Lot 307 DP 2475	Owned by Edward Smyth, engineer, in 1895. Ownership transferred through a number of individuals including an orchardist (from 1915 to 1922). Ownership transferred to Joseph Kirkpatrick, maintenance man, in 1924.
1923 to 1930	Vol 3502 Fol 31	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Owned by Charles Kirkpatrick, maintenance man, in 1923. Ownership transferred through a number of individuals to Joseph Kirkpatrick, maintenance man, in 1924.
1930	Vol 3502 Fol 31 and Vol 1156 Fol 193	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Transfer of ownership to Frederick Cruse and Joseph Kirkpatrick as tenants in common. Certificates of title cancelled and new certificates 4404-242 and 4404-243 issued.
1930 to 1931	Vol 4404 Fol 242 and Vol 4404 Fol 243	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Owned by Frederick Cruse and Joseph Kirkpatrick as tenants in common. Full ownership by Frederick Cruse by 1931. Certificates of Title cancelled and new certificate 4471-48 issued.
1931 to 1963	Vol 4471 Fol 48	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Owned by Frederick Cruse, gentleman.
1963 to 1964	Vol 4471 Fol 48	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Owned by Elizabeth Sarah Ann Kirkpatrick of West Hoxton, widow.
1964 to 1974	Vol 4471 Fol 48	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Owned by Bendoc Developments Pty Limited (1964 to 1969), Austrocom Pty Limited (1969 to 1970) and Guletta Pty Limited (1970 to 1974).

[1] Title search performed June 2014.

Ownership Period	Certificate of Title Reference	Property	Comments
1974 to 2001	Vol 4471 Fol 48	Lots 304 to 306, Lot 346 and part Lot 347 DP 2475	Owned by State Planning Authority of New South Wales, ownership transferred to the Minister Administering the *Environmental Planning & Assessment Act 1979* in 2001. Title cancelled.
2001	Auto Consol 4471-48	Lots 304 to 307 and Lot 346 DP 2475 and Lot 2 DP307334	Auto Consol created for title. Part Lot 347 DP 2475 now identified as Lot 2 DP307334.
2008 to date of search	Auto Consol 4471-48	Lots 304 to 307 and Lot 346 DP 2475 and Lot 2 DP307334	Current certificate of title issued in 2008. Owner identified as the Western Sydney Parklands Trust.

Notes: DP: Deposited Plan
Vol: Volume
Fol: Folio
Auto Consol: an identifier for titles which comprise more than one land parcel

The review of historical Certificates of Title indicates that the properties comprising the study area passed through a number of private owners from 1895 to 1964. Between 1964 and 1974 the study area was owned by a number of companies. From 1974 onwards the study area has been owned by the NSW Government. The review did not provide an indication of land use as leases or easements were not included on the titles and the activities of the companies which owned the study area were not identified.

3.1.3 Summary of Study Area History

The local area appears to have been primarily used for agricultural land uses, including grazing, market gardening and poultry farming. The study area was cleared prior to the mid 1950s (the earliest aerial photograph reviewed), and based on evidence from aerial photographs was used for market gardening purposes from before the 1970s and as the location of an operation which involved stockpiling material from prior to the mid 1990s. The properties comprising the study area were in private ownership until 1964, after which title was held by a succession of companies. The study area has been in government ownership since 1974.

4.0 REGULATORY AGENCY RECORDS SEARCHES

4.1 NSW Environment Protection Authority

A search of online records held by the NSW Environment Protection Authority (EPA) was undertaken. The search findings are presented below.

An on-line search on 18 June 2014 of the EPA's "Record of Notices" issued under the *Contaminated Land Management Act 1997* (the *CLM Act*) did not identify any sites within West Hoxton as being subject to current or prior notices. Two premises within the Liverpool City Council local government area were identified as having current or former notices issued under the provisions of the CLM Act.

Table 4: CLM Notice Search Results

Site	Distance from study area (approx.)
Australian Chemical Refiners, 85-107 Alfred Road, Chipping Norton	12 km E
ABB Australia, Bapaume Road, Moorebank	8.5 km E

It is considered that the premises identified in the search would not impact on the study area. A copy of the results of the notice search is provided in **Appendix D**.

The NSW EPA also maintains a "List of NSW contaminated sites notified to the EPA" under Section 60 of the *CLM Act*. Sites on this list indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA. The contamination at the site may or may not be significant enough to warrant regulation by the EPA and the EPA reviews relevant site information before making a determination as to whether or not the site warrants regulation. An online search for sites in West Hoxton and the surrounding suburbs of Austral, Horningsea Park and Hoxton Park was performed on 18 June 2014. The result of the search is presented in the table below.

Table 5: Section 60 Notification Search Results

Site	Distance from study area (approx.)	EPA Management
Endeavour Energy, 490 Hoxton Park Road, Hoxton Park	3.5 km to E	EPA assessment of the contamination of the site is in progress.

A search for Environment Protection Licences (EPLs) under the *Protection of the Environment Operations Act 1997* did not identify any EPLs for premises in West Hoxton. A search was also performed for EPLs on premises in the neighbouring suburbs Austral, Horningsea Park and Hoxton Park. The search results are summarised in the table below.

Table 6: EPL Search Results

Site	Distance from study area (approx.)	Activity	Status
West Hoxton Priority Sewage Program, Lowry Avenue, West Hoxton	1 km to SSW	Sewage treatment	Pending approval to surrender EPL
Inghams Enterprises Pty Limited, Kurrajong Road, Hoxton Park	2.5 km to SE	Slaughtering or processing animals	Surrendered
Scalabrini Village Ltd, 65 Edmondson	3.5 km to SW	Sewage treatment	Surrendered

Site	Distance from study area (approx.)	Activity	Status
Avenue, Austral			
Endeavour Energy, 490 Hoxton Park Road, Hoxton Park	3.5 km to E	Hazardous, Industrial or Group A Waste Generation or Storage	No longer in force
Visy Board Proprietary Limited10/10 Lyn Parade, Hoxton Park	5 km to E	Hazardous, Industrial or Group A Waste Generation or Storage	No longer in force

The nearest of the premises identified in the search, formerly occupied by the West Hoxton Priority Sewage Program, is located approximately 1 km to the south-southwest of the study area. Review of aerial imagery provided by Nearmap showed the presence of an assumed works compound on the northern side of Lowry Avenue in May 2013. The assumed compound had been cleared by May 2014.

It is considered that the licensed or formerly licensed premises identified in the search would not impact on the study area.

A copy of the results of the EPL searches is provided in **Appendix D**.

4.2 Local Council

Local councils issue planning certificates under Section 149 (2) and (5) of the *Environmental Planning and Assessment Act 1979*, which contain information on permissible uses of a property and identify restrictions on development. Section 149 certificates contain information pertaining to potential or actual contamination at the subject study area.

The following information was provided in the Section 149 certificate for the study area issued by Liverpool City Council (certificate no: 7011) on 25 June 2014:

"The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

that the land to which the certificate relates is significantly contaminated land within the meaning of that Act-if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is subject to a management order within the meaning of that Act-if it is subject to such an order at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act-if it is the subject of such an approved proposal at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act-if it is subject to such an order at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act-if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

Not Applicable"

Information provided under Part B of the planning certificate pursuant to Section 149(5) of the EP&A Act included:

"*7. Contaminated Land*

Nil

10. Environmentally Significant Land

Nil

12 Unhealthy Building Land Proclamation

Nil"

Under Section 50 of the *Contaminated Land Management Act 1997*, the EPA must inform the local authority after the occurrence of any of the following in relation to land:

- The land being declared to be significantly contaminated land or ceasing to be significantly contaminated land.
- A management order in relation to the land being served on a person or being revoked.
- The EPA giving its approval or withdrawing its approval for a voluntary management proposal in relation to the land or a voluntary management proposal in relation to the land being completed to the satisfaction of the EPA.
- An ongoing maintenance order in relation to the land being served on a person or being revoked.

The information contained in the Section 149 Certificate therefore reflects the information from the search of online records held by the NSW Environment Protection Authority (EPA) (**Section 4.1**).

The Section 149 Certificate did not include information on the land zoning of the study area. Review of land zoning maps for the Liverpool Local Environment Plan 2008 indicates the study area is zoned *WSP SEPP Western Sydney Parklands*.

A copy of the land use planning certificate is provided in **Appendix D**.

4.3 Notified Dangerous Goods

A search of the files relating to historical storage of Dangerous Goods at the study area held by WorkCover NSW was undertaken and reported in a response dated 9 Juley 2014. WorkCover NSW advised that a search of their Stored Chemical Information Database (SCID) and microfiche records did not locate any records relating to the study area.

A copy of the response from WorkCover NSW is included in **Appendix D**.

5.0 STUDY AREA INSPECTION

As part of the assessment, Golder (Mr Tom Carmichael) completed a walkover inspection on 24 June 2014. During the inspection Golder met with and interviewed Mr. Felice Bischetto, the long term tenant of the study area. The findings of the inspection and interview are presented in the following sections.

5.1 Study Area Historical Information

The tenant advised that he had occupied the study area since 1970. The study area had been used by the tenant for market gardening activities from 1970 to 2004 and for a manure bagging operation from 2004 to the present. A builder had used the south eastern corner of the study area as a storage yard.

5.2 Study Area Activities

The activities undertaken at the study area comprise the following:

- Market gardening activities included growing of tomatoes, cabbages and lettuces. The furrow lines of the historical market gardening activities were evident during the walkover and were consistent with the historical aerial photographs.
- For the manure bagging operation, manure is stockpiled on an earth pad located in the centre of the study area and then transferred via front end loader to a bagging machine located adjacent to the residence in the south east corner of the study area. The manure is sourced from dairy farms and chicken farms. Reportedly no additives are mixed into the manure.
- No information was provided during the interview regarding the duration of use of the south east corner of the study area as a builder's yard.

5.3 Study Area Infrastructure

The infrastructure at the study area comprises the following:

- A small residential cottage located in the south east corner of the study area.
- Three large storage sheds located to the north and west of the cottage.
- A manure bagging machine located west of the cottage.
- A small pump shed constructed of galvanised iron was located on the south east edge of the main dam. The pump within the shed was electrically powered.

5.4 Other Observations

The area downstream of the main dam wall appeared to contain the remnants of a former farm shed evidenced by timber poles and fragments of a concrete floor. The likely remains of the shed structure were piled nearby, comprising corrugated iron sheeting, concrete and fibre cement sheeting with vegetation cuttings.

Minor assorted domestic rubbish had been dumped at several locations immediately inside the study area boundary adjoining Flynn Avenue. The rubbish included vehicle tyres, paint tins, plastic and glass bottles, shoes and bedding foam.

Several vehicles, comprising trucks and caravan, were observed stored on the study area to the north west of cottage.

Vegetation waste and waste timber was observed dumped on the down-slope side of the earth pad for the manure stockpiling.

Imported fill material had been used to build up the land in the south east corner of the study area to form a base for a shed and storage areas. This material was observed to contain fibre cement fragments, assumed to contain asbestos, in crushed concrete.

6.0 POTENTIAL SOURCES OF SOIL AND GROUNDWATER CONTAMINATION

The potential sources of soil and groundwater contamination on the study area are discussed in the following sections.

Potential for USTs on bus depot

There is potential for the bus depot located to the east of the study area, and upgradient of the study area, to have contained underground fuel storage tanks. In the event that such tanks were present and leaked, there is potential for such leaked fuel to migrate onto the study area. No information was available to confirm whether fuel storage tanks have been present at the bus depot. Observations made from the property boundary during the walkover inspection did not identify bowsers or breather vents indicating the potential presence of USTs

USTs at petrol station on site on southern side of Fifteenth Avenue

The underground fuel storage tanks at the petrol station located on the southern side of Fifteenth Avenue represent a potential source of contamination. However, no information was available to confirm whether the tanks may have leaked. It is also noted that the petrol station is located cross-gradient of the study area and in the event of a leak from the tanks the likelihood that hydrocarbon plumes would extend to the study area is considered to be low.

Former market gardening activities

The historical market gardening activities on the study area may have involved the use of herbicides and pesticides, presenting a risk of soil contamination. The potential for broad acre impact is considered to be low. There is greater potential for localised impact at herbicide/pesticide storage areas. However, no information was available regarding the type or quantity of herbicides/pesticides (if any) used at the study area or storage arrangements and locations.

Farm Dam Sediments

There is potential for pesticides and herbicides which may have been applied to the study area during market gardening activities to have accumulated in dam sediments at the study area.

Potential surficial spillages from operation or storage of machinery

Machinery used or stored on the study area for market gardening and manure handling operations may have involved surface spillage of fuel or oil. However, no information was available of such spillages and, if they occurred, they are likely to be localised and of small volumes.

Historical USTs or Aboveground Fuel Storage Tanks (ASTs)

Reportedly there have not been any aboveground or underground fuel storage tanks on the study area.

Filling in the Builder's Yard

The fill material in the builder's yard has the potential to be contaminated. Fibre-cement sheeting fragments were evident in the crushed concrete fill, representing a potential source of asbestos contamination.

Demolition Waste

Waste materials located downstream of the main dam were observed to contain fragments of fibre- cement sheeting, representing a potential source of asbestos contamination.

6.1 Preliminary Sampling Program

A limited number of samples were collected to gain information on potential for contamination of the sediments and water in the large dam on the study area. The rationale behind the sampling was that the

dam would act as a “sink” for contaminants applied to surface soils during activities, and mobilised by transportation of sediments by overland flow.

Sediment and dam water samples were collected for screening analysis on 25 June 2014. Two sediment samples (soil samples Location 1-001, Location 1-002) and one water sample (water sample Location 1-001) were collected from the large dam in the central southern section of the study area. One sediment sample (soil sample Location 2-001) and one water sample (water sample Location 2-001) were collected from the smaller dam located near the western boundary of the study area. The sample locations are shown in Figure 1.

The sediment and dam water samples were analysed for the following analytical suite:

- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN);
- Metals (arsenic, cadmium, copper, chromium, lead, mercury, nickel and zinc);
- Polycyclic aromatic hydrocarbons (PAH);
- Organochlorine pesticides (OCP); and
- Organophosphorus pesticides (OPP).

Sampling was subsequently performed as part of a geotechnical investigation (Golder 2014). Three soil samples (samples TP07_0.1-0.3, TP07_0.3-0.5 and TP10_0.3-0.5) were collected from test pits excavated on 7 July 2014 to the south and west of the large dam on the study area and analysed for the presence of acid sulfate soils.

In addition, soil samples (samples Pit2_03/07/14 and Pit3_03/07/14) from exploratory pits excavated in an area of filling in the builder’s yard area and samples of fibre cement sheet (samples Fibro1_26/06/14 and Fibro2_03/07/14) were analysed for the presence of asbestos. The sample locations are shown in Figure 1.

Two samples of fibre cement sheet were collected from the builder’s yard in the south east corner of the study area. Sample Fibro 1 was collected from the bank of the exposed fill, while sample Fibro2 was collected from debris observed in the crushed concrete aggregate used as a working surface in the area.

The results of the analysis performed are presented in Table 1 for the sediment samples, Table 2 for the dam water samples, Table 3 for the acid sulfate soil testing and Table 4 for the asbestos testing in **Appendix E**.

All samples were analysed by Envirolab Services Pty Ltd (Envirolab), which is accredited by the National association of Testing Authorities, Australia (NATA) for the testing performed. Copies of certificates of analysis and chain of custody documentation are presented in **Appendix F**.

6.1.1 Sediment and Soil Analysis Results

The results for the sediment samples were compared to soil investigation levels presented in *the National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013) (“the NEPM”). The NEPM presents human health and ecological investigation levels, which are the concentrations of contaminants above which further appropriate investigation and evaluation will be required. The investigation levels have been derived considering relevant exposure settings for low and high density residential; recreational/open space; and commercial / industrial land uses. Given the proposed redevelopment of the study area, sediment results have been compared to investigation levels for commercial/industrial land use on the assumption that the dam will be drained and the sediments exposed as surface soils. The results were compared to the following investigation levels and limits for commercial/industrial land use:

- Health investigation levels (HILs) for metals, PAH, OCP and OPP;

- Health screening levels (HSLs) for vapour intrusion for TRH fractions and BTEXN. Where no guidance for vapour intrusion was included in the NEPM, the TRH fractions were compared to the health screening levels for direct contact on commercial/industrial sites documented in *Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10* (CRC 2011);
- Management limits (MLs) for hydrocarbons. The management limits are intended to minimise the potential for phase separated hydrocarbons, fire and explosive hazards and effects on buried infrastructure;
- Default environmental investigation levels (EILs) for arsenic, lead, naphthalene (a PAH compound) and DDT (an OCP compound); and
- Ecological screening levels (ESLs) for TRH, BTEX and benzo[a]pyrene (a PAH compound).

In general, organic analytes were not detected above the laboratory limit of reporting, with the exception of sample Location 1-001 where a single PAH compound was reported at a concentration equal to the limit of reporting of 1 mg/kg (i.e. 0.1 parts per million (ppm)). Cadmium and mercury were not detected. The remaining metals were detected in all samples at concentrations less than the adopted health based investigation assessment criteria.

No exceedances of the adopted criteria occurred. The concentrations reported for the analyses were generally orders of magnitude below the relevant guidance for commercial/industrial land use sites.

The analysis results for acid sulfate soil testing were below the action criteria presented in ASSMACC 1998 for the respective soil textures of the samples. The analysis results are consistent with the desktop review, which indicated that ASS would not be present at the study area (see **Section 2.3**).

Asbestos was not identified in the two soil samples analysed from test pits Pit2 and Pit3 excavated in the builder's yard. No respirable fibres were detected and asbestos was not detected (at the reporting limit of 0.1g/kg).

Asbestos was detected in the two samples of fibre cement sheet analysed from the builder's yard. Both samples were identified as containing chrysotile ("white") asbestos, with one of the samples also containing amosite ("brown") asbestos.

6.1.2 Dam Water Analysis Results

The dam water analysis results were guidance values presented in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC 2000). The criteria adopted were the "trigger values" providing protection for 95% of species in fresh water. The adoption of the 95% protection of species trigger value is consistent with notification triggers for ground and surface water adopted by the EPA in the *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (DECC 2009).

In general, organic analytes were not detected above the laboratory limit of reporting, with the exception of sample Location 2-001 where $>C_{16}$ to C_{34} fraction TRH was reported at a concentration of 310 µg/L (i.e. 310 parts per billion (ppb)). Metals, with the exception of arsenic and zinc, were not detected. The maximum arsenic and zinc concentration reported was 1 µg/L.

The concentrations reported for the analyses were below the adopted 95% protection of species trigger values for metals, benzene, xylene and naphthalene. There is currently no accepted guidance for concentrations of TRH in water.

OCPs and OPPs were not detected in the water samples at concentrations above the laboratory limit of reporting of 0.2 µg/L. However, the limit of reporting exceeded some of the trigger values for specific pesticides. However, in accordance with *the Guidelines for the Assessment and Management of Groundwater Contamination* (DEC 2007) the limit of reporting may be adopted as a screening criterion in such cases.

7.0 DISCUSSION AND RECOMMENDATIONS

7.1 Discussion

A preliminary environmental assessment of the study area of the proposed commercial precinct at 195 Fifteenth Avenue, West Hoxton has been performed. The desktop review and walkover inspection indicated that the study area was historically used for market gardening purposes, and parts of the study area are currently used for a manure bagging operation and as a builder's storage yard.

A former bus depot, located up gradient of the study area to the east, has the potential for underground storage tanks (USTs) to be present. Observations made from the property boundary during the walkover inspection did not identify bowsers or breather vents indicating the presence of USTs and it is considered there is a low potential for the bus depot to be a potential source of impact to the study area. A service station, located on the southern side of Fifteenth Avenue, is inferred to be cross gradient of the study area and is not considered to be a likely source of impact to the study area.

The use of the study area for the bagging of manure is considered to have a low potential to significantly contaminate the study area as no additives were reported to be mixed into the manure during handling.

Asbestos cement debris has been identified in fill material located in the south eastern corner of the study area which is in use as a builder's yard. In addition, fragments of asbestos cement sheet were observed in the crushed concrete gravel used as a surface layer in this area of the study area. Samples of fill collected from below the crushed concrete layer did not contain asbestos fibres. In addition, there is the potential for asbestos cement debris in the vicinity of existing structures on study area (e.g. the cottage in south east corner of study area) and at the location of former structures or in stockpiles of demolition material.

Sampling of sediment and water from the large dam located in the south western corner of the study area indicated that market gardening operations on the study area have not significantly impacted upon the sediment or water quality. The potential for broad acre impact of the study area from application of pesticides or herbicides from market gardening is considered to be low, however there is greater potential for localised impact at agricultural chemical storage or mixing areas. The locations of agricultural chemical storage or mixing areas were not disclosed by the tenant and were not identified during the walkover inspection.

Screening analysis did not indicate the presence of acid sulfate soils (ASS), which is consistent with ASS mapping of the area of the study area.

7.2 Recommendations

Based on the findings of the preliminary environmental assessment, including the results of the limited sampling and analysis performed, it is considered the study area could be made suitable for the proposed use, subject to the following conditions/actions being imposed as "Prior to Commencement" conditions of the development consent:

- Additional soil/ground water assessment of the land packages would be required to confirm the suitability of the site for the proposed development in accordance with SEPP 55 as required by Item 13 of the amended Secretary's Environmental Assessment Requirements (SEARs) issued 11 February 2015. The sampling, analysis and reporting should comply with guidance issued by the EPA under section 105 of the *Contaminated Land Management Act 1997*.

  The additional assessment would include the collection of soil samples from within or adjacent to existing or former sheds on the study area to assess the potential for localised impact from potential agricultural chemical storage or mixing areas and from grid based sampling locations to assess the potential for diffuse impact across the study area.

- Asbestos cement debris has been identified on the study area. Asbestos debris and impacted fill should be managed prior to commencement of earthworks in accordance with guidance including:

  - *Managing asbestos in or on soil*, WorkCover NSW, 2014.

- *National Environment Protection (Assessment of Site Contamination) Measure 1999*, National Environment Protection Council, April 2013 (NEPC 2013).
- *Management of asbestos in the non-occupational environment*, enHealth, 2005 (enHealth 2005).

Management options include excavation and removal of asbestos debris and impacted fill, removal of asbestos from soils with validation, or on-site containment (subject to approval).

7.3 Comments

The dams on the study area should be drained, with dam water disposed in accordance with the requirements of the *Protection of the Environment Operations Act 1997*.

Demolition of structures on the study area should be performed after the removal of asbestos and other hazardous building materials in accordance with the requirements of Australian Standard *AS 2601 The demolition of structures*. Asbestos should be removed in accordance with Code of Practice *How to Safely Remove Asbestos* (SWA 2011) and relevant WorkCover NSW guidance.

8.0 REFERENCES

ANZECC 2000 — *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000.

ASSMAC 1998 — *Acid Sulfate Soils Assessment Guidelines*, NSW Acid Sulfate Soils Management Advisory Committee, August 1998.

CRC 2011 — *Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10*, CRC for Contamination Assessment and Remediation of the Environment, 2011.

DEC 2007 — *Guidelines for the Assessment and Management of Groundwater Contamination*, NSW Department of Environment and Conservation, March 2007.

DECC 2009 — *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*, NSW Department of Environment and Climate Change, June 2009.

enhealth 2005 — *Management of asbestos in the non-occupational environment*, enHealth, 2005.

McKenzie 2013 — *Request for Director General Environmental Assessment Requirements, Commercial Development Fifteenth Avenue*, McKenzie Group, February 2013.

NEPC 2013 — *National Environment Protection (Assessment of Site Contamination) Measure 1999*, National Environment Protection Council, 2013.

RTA 2005 — *Guidelines for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze*, Roads and Traffic Authority NSW, April 2005.

SWA 2011 — *How to Safely Remove Asbestos*, Safe Work Australia, December 2011.

WorkCover 2014 — *Managing asbestos in or on soil*, WorkCover NSW, 2014.

9.0 LIMITATIONS

Your attention is drawn to the following limitations, which must be read in conjunction with this report.

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Report Signature Page

GOLDER ASSOCIATES PTY LTD

Shane Doyle
Senior Environmental Scientist

Tom Carmichael
Principal Environmental Scientist

SPD/TC/spd

A.B.N. 64 006 107 857

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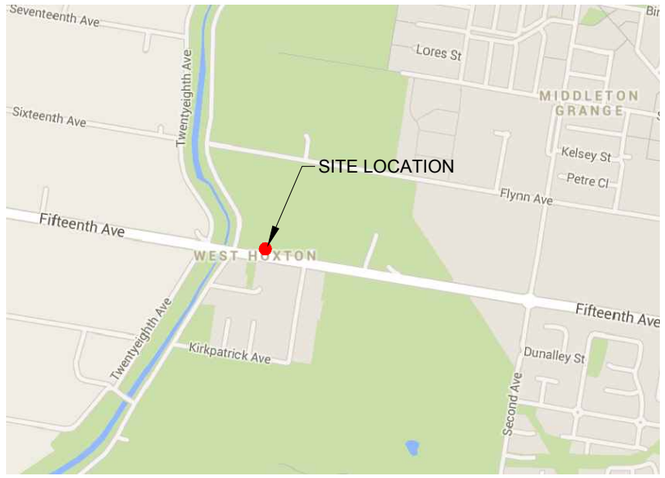


LOCALITY PLAN
NOT TO SCALE

LEGEND

- BOREHOLE LOCATIONS
- TEST PIT LOCATIONS
- ENVIRONMENTAL SAMPLE LOCATION
- EXISTING STUDY AREA FOR 195 FIFTEENTH AVE.

REFERENCE

BASE SURVEY CONTOUR TAKEN FROM TOTAL SURVEYING SOLUTION DRAWING 15060_A.DWG, RECEIVED DATED 2015-02-10

IMAGE DATED 24-05-2014
SOURCED WITH PERMISSION FROM NEARMAP ON 17-06-2014
IMAGE GEOREFERENCED BY GOLDER AND INTENDED FOR INDICATIVE PURPOSES ONLY
www.nearmap.com.au

0 50 100
1:2,000 METRES

CLIENT

WESTERN SYDNEY PARKLANDS TRUST

CONSULTANT

Golder Associates

YYYY-MM-DD	2015-04-21
PREPARED	EJJ
DESIGN	AS
REVIEW	BMS
APPROVED	CSC

PROJECT

195 FIFTEENTH AVENUE, WEST HOXTON

TITLE

195 FIFTEENTH AVENUE, WEST HOXTON INVESTIGATION LOCATIONS

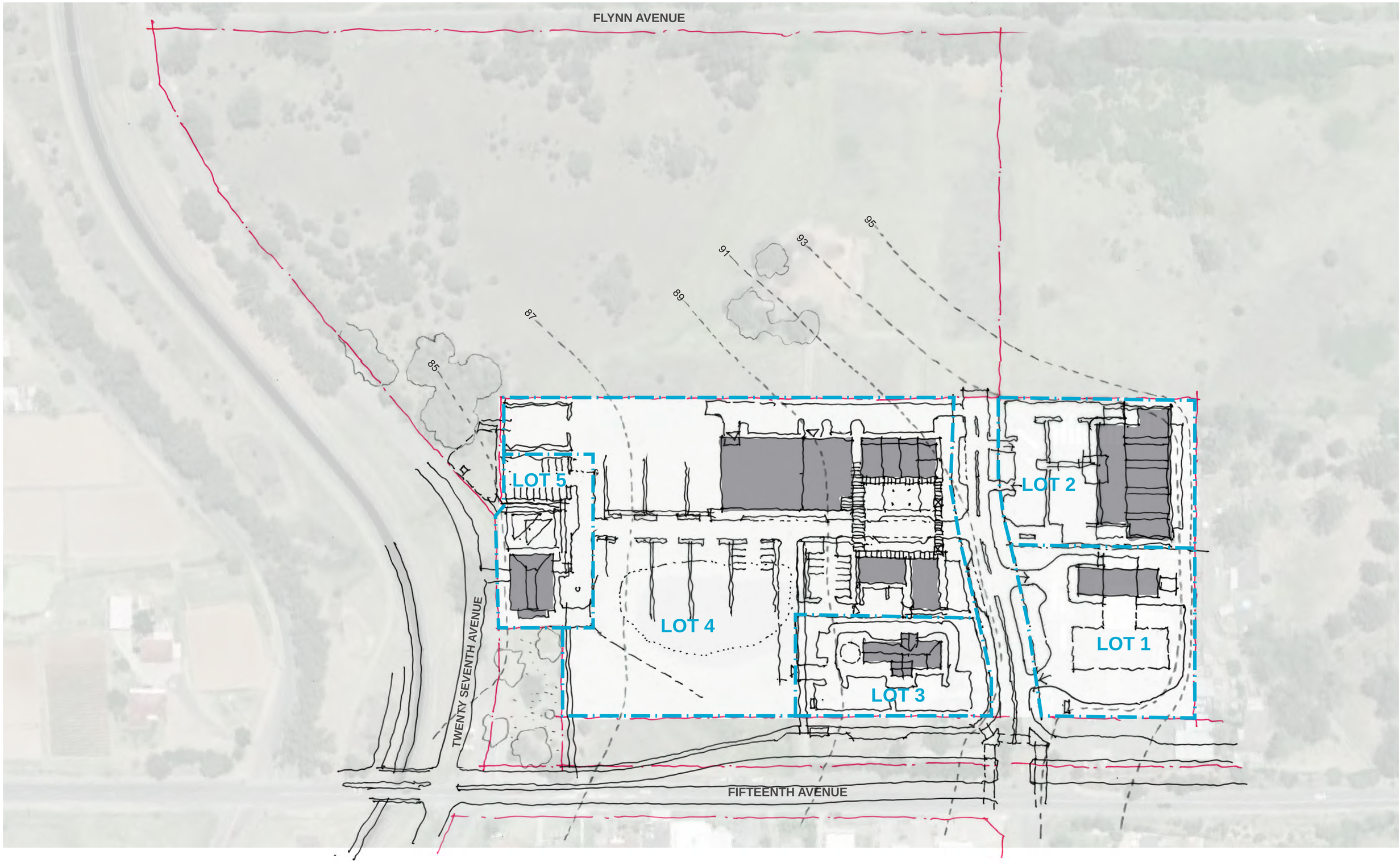
PROJECT No.	REPORT	Rev.	FIGURE
147622023	001 - R	0	FIGURE 1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ISO A3

25 mm

0

Path: ---- | File Name: 147622023-001-R-F001-REV0.dwg



LFA (PACIFIC) PTY LIMITED

MASTERPLANNING
URBAN DESIGN
ARCHITECTURE
LANDSCAPE ARCHITECTURE
INTERIORS

SUITE 4, EDGECLIFF COURT, 2 NEW McLEAN ST, EDGECLIFF NSW 2027
M PO BOX 259, EDGECLIFF NSW 2027 T 02 9327 6822 F 02 9327 5554
E lfa@lfa.com.au W www.lfa.com.au ABN 92 830 134 905 QM ISO 9001-2008

NOMINATED ARCHITECTS ALF LESTER NO.2128 STEPHEN ANDERS NO.5764

lot pattern sketch

2014-4330 -u/c
04 february 2015

0 10 20 50 100m

Scale 1:1,000 @ A2

west hoxton

schematic

Figure 2

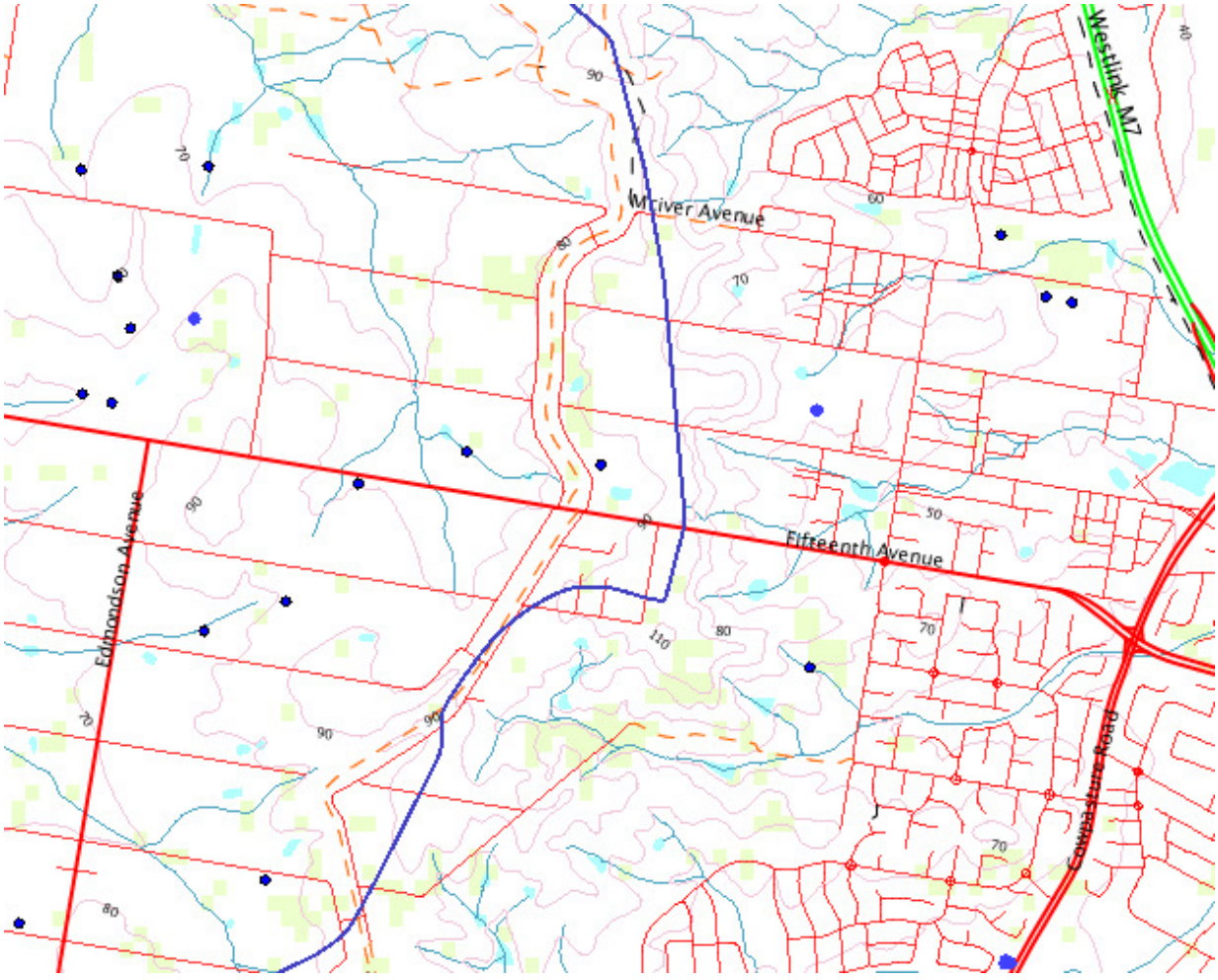
APPENDIX A

Groundwater Bore Search Results

West Hoxton Bore Search

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au

Thursday, June 19, 2014



0 3 Km

Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
Symbol	Groundwater Bores	
Symbol	Catchment Management Authority boundaries	
Symbol	Major rivers	
Primary/arterial road Motorway/freeway Railway Runway Contour Background	Topographic base map	

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Thursday, June 19, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW105305

Works Details (top)

GROUNDWATER NUMBER	GW105305
LIC-NUM	10BL162877
AUTHORISED-PURPOSES	TEST BORE
INTENDED-PURPOSES	TEST BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2004-03-05
FINAL-DEPTH (metres)	240.00
DRILLED-DEPTH (metres)	240.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	ANGLICAN COLLEGE
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	91.00
SALINITY	4610.00
YIELD	0.30

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9030-2S
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6244887.00
EASTING	300098.00
LATITUDE	33 55' 3"
LONGITUDE	150 50' 15"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	CABRAMATTA
PORTION-LOT-DP	241 2475

Licensed (top)

COUNTY	CUMBERLAND
PARISH	CABRAMATTA
PORTION-LOT-DP	241 2475

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	5.60	205			Down Hole Hammer
1		Hole	Hole	5.60	150.00	165			Down Hole Hammer
1		Hole	Hole	150.00	240.00	160			Down Hole Hammer
1	1	Casing	Steel	-0.40	5.60	168.3	158.7		C: 0-5.6m; Suspended in Clamps
1	1	Casing	PVC Class 9	0.40	78.60	140			Screwed and Glued; Suspended in Clamps; Other

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
61.00	62.00	1.00				0.10	66.00	0.25	10000.00
159.50	159.60	0.10				0.10	162.00	0.25	5600.00
191.00	192.00	1.00				0.30	192.00	0.25	5800.00

Drillers Log (top)

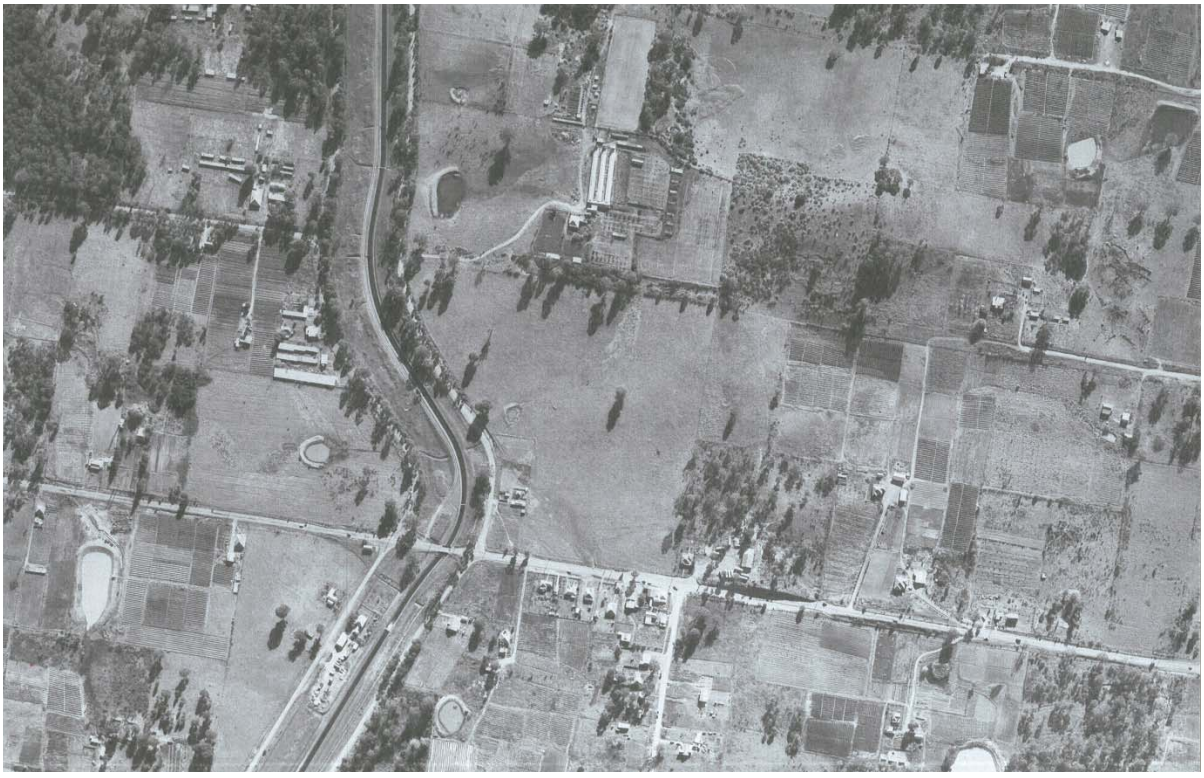
FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	2.50	2.50	CLAY		
2.50	68.70	66.20	FRACT.SHALE AND SILTSTONE		
68.70	127.50	58.80	SILTSTONE		
127.50	134.00	6.50	SANDSTONE DARK GREY F/G		
134.00	149.00	15.00	SANDSTONE GREY LT GREY M/G		
149.00	150.50	1.50	HARD SHALE		
150.50	159.50	9.00	SANDSTONE GREY		
159.50	159.70	0.20	F.SANDSTONE GREY		
159.70	186.00	26.30	SANDSTONE LT GREY		

186.00	198.00	12.00	SANDSTONE GREY DARK GREY
198.00	240.00	42.00	SANDSTONE GREY

APPENDIX B

Aerial Photographs

1955



1961

1970

1978

1994

2002

\\golder.gds\gap\sydney\jobs\geo\2014\147622023_wspt_site gi_west hoxton\correspondence out\147622023_001_rev2 appendices\appendix b - aerial photographs\147622023_001_r_rev2 appendix b.docx

APPENDIX C

Land Title Certificates

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 4471-48

SEARCH DATE	TIME	EDITION NO	DATE
30/6/2014	10:25 AM	2	29/5/2008

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT HOXTON PARK
LOCAL GOVERNMENT AREA LIVERPOOL
PARISH OF CABRAMATTA COUNTY OF CUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

SECOND SCHEDULE (1 NOTIFICATION)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOTS 304-307 IN DP2475	DP2475
LOT 346 IN DP2475	DP2475
LOT 2 IN DP307334	DP307334.

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
30/6/2014 10:28AM

FOLIO: AUTO CONSOL 4471-48

Recorded	Number	Type of Instrument	C.T. Issue
24/7/2001	7796039	CONSOL HISTORY RECORD CREATED FOR AUTO CONSOL 4471-48	
		PARCELS IN CONSOL ARE: 304-307/2475, 346/2475, 2/307334.	
27/7/2001	7682056	REQUEST	EDITION 1
29/5/2008	AD766661	APPLICATION	EDITION 2

*** END OF SEARCH ***

147622023 spd PRINTED ON 30/6/2014

ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.

212.

Appn. No. 5620

Reference to last Certificates

Vol. 4404 Fols 242 and 243

New South Wales.

20805 6.30

[CERTIFICATE OF TITLE.]

REGISTER BOOK.

VOL. 4471 FOL. 48

R.

Frederick Cruse of Hoxton Park, Gentleman, Transferee as to an undivided moiety or half share under Instrument of Transfer No C.51213 and as to the other undivided moiety by virtue of Certificate of Title Volume 4404 Folio 242 now surrendered for consolidation is now the proprietor of an estate in fee simple

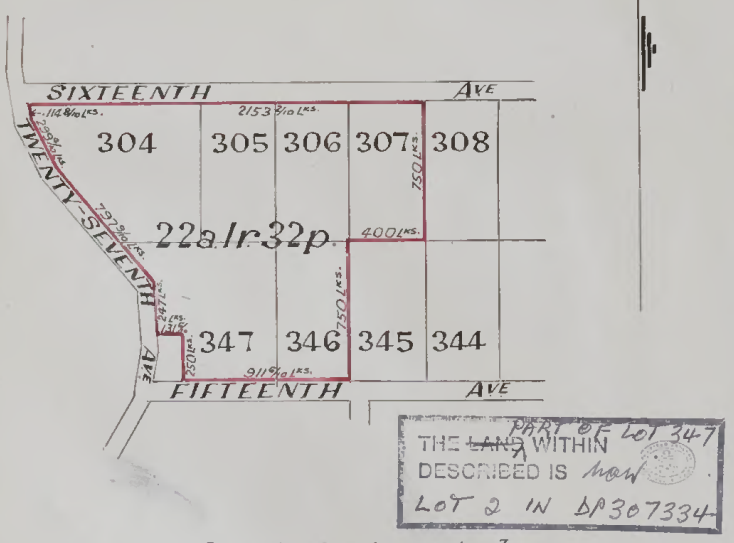
subject nevertheless to the reservations and conditions, if any, contained in the Grants hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated at Hoxton Park in the Shire of Nepean Parish of Cabramatta, and County of Cumberland containing Twenty two acres one rood thirty two perches or thereabouts, as shown in the Plan hereon and therein edged red, being Lots 304 to 307 inclusive Lot 346 and part of Lot 347 in Deposited Plan No 2475 and being also part of 800 acres (Portion 40 of Parish) originally granted to Thomas Sterrop Amos by Crown Grant dated the 13th day of January 1818 and also part of 400 acres (Portion 42 of Parish) originally granted to Edward Gray by Crown Grant dated the 13th day of January 1818

In witness whereof I have hereunto signed my name and affixed my Seal, this third day of March, 1931.

Signed in the presence of J. H. Redgard

Acting Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES



Scale: 8 Chains to one inch.

C51213

NOTIFICATION REFERRED TO

1e 15 8669

1 Bardoc Developments Pty Limited

now the registered proprietor of the land within described.

See TRANSFER No. I758669 dated 21st August 1964

Entered 10th September, 1964.

REGISTRAR GENERAL

No. I758670 MORTGAGE dated 21st August, 1964

to J. & L. Leitz Pty Limited

Entered 10th September, 1964

REGISTRAR GENERAL

T/A 95

14 Elizabeth Sarah Ann Kirkpatrick of West Hoxton, Widow is

now the registered proprietor of the land within described.

See Section 94 Application No. I459495

Entered 14th October 1963.

REGISTRAR GENERAL

I459495 T/A

D/M K479691

MORTGAGE No. I758670 has been discharged.

See K479691 Entered 25th October 1966.

REGISTRAR GENERAL

Austracom Pty Limited

is now the registered proprietor of the land within described

See TRANSFER No. L361191 dated 20th February 19 69

Entered 18th March 19 69

REGISTRAR GENERAL

No. L361192 MORTGAGE dated 20th February 1969

to Bondac Developments Pty Limited

Entered 18th March 19 69

REGISTRAR GENERAL

MORTGAGE No. L361192 has been discharged.

See L840716 Entered 8th June 1970.

REGISTRAR GENERAL.

Mellotta Pty Limited is

now the registered proprietor of the land within described

See TRANSFER No. L840717 dated 1st May 1970

Entered 8th June 1970

REGISTRAR GE

No. L840718 MORTGAGE dated 1st May 1970

to Austrocom Pty Limited

Entered 8th June 19 70

REGISTRAR GENERAL

MORTGAGE No. L840718 has been discharged.

See M119382 Entered 13th January 1971.

REGISTRAR GENERAL.

No. M359501 MORTGAGE dated 2nd July 19 71

to Bank of New South Wales

Entered 29th July 19 71

Discharged P79975 20-11-1974

REGISTRAR GENERAL

The State Planning Authority of New South Wales is

now the registered proprietor of the land within described.

See TRANSFER No. P79976 dated 1st November 19 74

Entered 26th November 19 74

REGISTRAR GENERAL

REGISTERED PROPRIETOR Minister Administering the Environmental Planning & Assessment act 1979 by Request 7682056. Registered 23/7/2001.

Folio cancelled as to whole. New folio created for Auto Consol 4471-48.

P79976

P79975 D/M 7682056 R.P.

Appn. No. 5620.

Reference to Last Certificates

Vol. 1156 Fol. 193
" 3602 " 31

New South Wales.

86885 4.29

[CERTIFICATE OF TITLE.]

Tenancy in Common

REGISTER BOOK.

VOL. 4404 FOL. 242

CANCELLED

Frederick Cruse of Hoxton Park Gentleman Transferee under Instrument of Transfer No. B963798 is now the proprietor of an Estate in Fee simple in an undivided moiety or half share

subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated at Hoxton Park

in the Shire of Nepean Parish of Cabramatta, and County of Cumberland

containing Twenty two acres one rood thirty two perches or thereabouts,

as shown in the Plan hereon and therein edged red, being Lots 304 to 308 inclusive Lot 346 and part of Lot 347 in Deposited Plan No 2475 and being also part of 800 acres (Portion 40 of Parish) originally granted to Thomas Sherrop Amos by Crown Grant dated the 13th day of January 1818 and also part of 400 acres (Portion 42 of Parish) originally granted to Edward Gray by Crown Grant dated the 13th day of January 1818

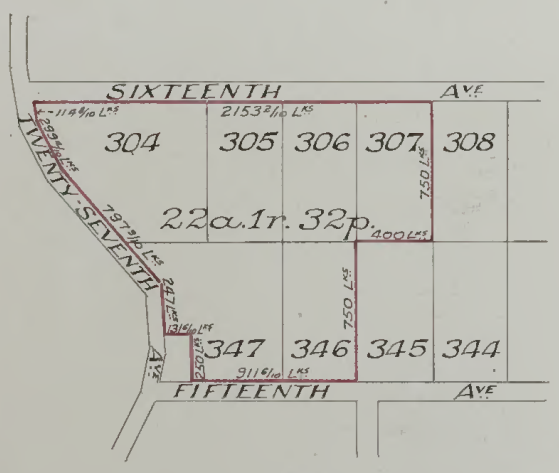
Which said Grants are delineated in the public map of the said Parish in the Department of Lands.

In witness whereof I have hereunto signed my name and affixed my Seal, this nineteenth day of May 1930.

Signed in the presence of W. Worrell

E. S. Clayton
Registrar General.

REGISTRAR GENERAL * NEW SOUTH WALES *



Scale: 8 Chains to one inch

15 hours J.G.
B963798 Lodged
Issued
Cpy

No. 0 TRANSFER dated 19
from the said
of the Land within described
Produced and entered 19
at o'clock in the noon.
As to land in this transfer
this is cancelled
and new Certificate issued
Vol Fol REGISTRAR GENERAL

REGISTRAR GENERAL * NEW SOUTH WALES *

Dep. Reg. Genl.
4-3-31

This Deed is Cancelled and Certificate of Title issued
Vol. 4471 Fol. 48

051213 Acting Registrar General.

REGISTRAR GENERAL * NEW SOUTH WALES *

Re 5/12/13

Appn. No. 5620

Reference to Last Certificates

Vol. 1156. Fol. 193
" 3502 " 31.

New South Wales.

86685 4.29

[CERTIFICATE OF TITLE.]

Tenancy in Common

REGISTER BOOK.

VOL. 4404 FOL. 243

CANCELLED

Joseph Kirkpatrick of West Hoxton Maintenance Man Transferee under Instrument of Transfer No. B 963798 is now the proprietor of an Estate in Fee Simple in an undivided moiety or half share

subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated

in the Shire of Nepean Parish of Cabramatta, and County of Cumberland

containing Twenty two acres one rood thirty two perches or thereabouts,

as shown in the Plan hereon and therein edged red, being Lots 304 to 307 inclusive Lot 346 and part of Lot 347 in Deposited Plan No 2475 and being also part of 800 acres (Portion 40 of Parish) originally granted to Thomas Sherrop Smith by Crown Grant dated the 13th day of January 1818 and also part of 400 acres (Portion 42 of Parish) originally granted to Edward Gray by Crown Grant dated the 13th day of January 1818 Which said Grants are delineated in the public maps of the said Parish in the Department of Lands.

In witness whereof I have hereunto signed my name and affixed my Seal, this nineteenth day of May 1930.

Signed in the presence of V.T. Dillwell

Registrar General.

Scale: 8 Chains to one inch

12 Sheet 979
8963798 304 and Cyprus

304 Notification referred to

No. C 51213 TRANSFER dated 14th February 1931
from the said Joseph Kirkpatrick to Frederick Cruse of his undivided moiety
of the Land within described
Produced and entered 20th February 1931
at 40 m to 1t. 2 o'clock in the after noon.
As to land in this transfer this Lot/part is cancelled and new Certificate issued Vol. 4471 Fol. 48

ACTING REGISTRAR GENERAL

Appn. No. 5620

Reference to last certificate

Vol. 2774 Fol. 12

New South Wales.

St 9195 7757—2 4.23

[CERTIFICATE OF TITLE.]

ORDER NO.A.982199

RESIDUE AFTER TRANSFER NO.A.982198

REGISTER BOOK,

VOL. 3502 FOL. 31

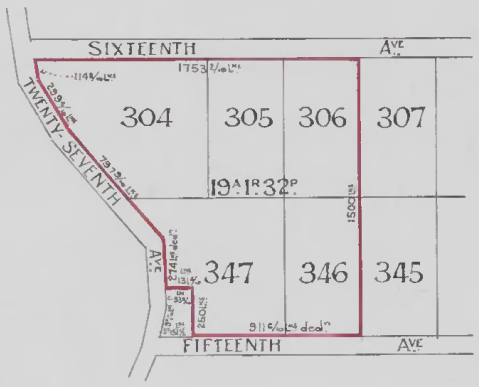
CANCELLED

CHARLES KIRKPATRICK of Hoxton Park, Maintenance Man, by virtue of Certificate of Title Volume 2774 Folio 12 now surrendered as to Residue after Transfer No.A.982198 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grants hereinafter referred to, and also subject to such encumbrances, liens and interests, as are notified hereon, in that piece of land situated at Hoxton Park in the Shire of Nepean Parish of Cabramatta, and County of Cumberland containing Nineteen acres one rood thirty two perches, or thereabouts, as shown in the Plan hereon and therein edged red, being Lots 304, 305, 306 and 346 and part of Lot 347 in a plan deposited in the Land Titles Office, Sydney, No.2475 and being also part of 800 acres (Portion 40 of Parish) originally granted to Thomas Sterrop Amos by Crown Grant dated the thirteenth day of January One thousand eight hundred and eighteen and also part of 400 acres (Portion 42 of Parish) originally granted to Edward Gray by Crown Grant dated the thirteenth day of January One thousand eight hundred and eighteen which said Grants are delineated in the Public Map of the said Parish in the Department of Lands.

In witness whereof I have hereunto signed my name and affixed my Seal, this 10th day of September 1923.

Signed in the presence of W P Friend

Registrar General.



Scale:-8Chs to one inch

A 982199

No. B 963798 TRANSFER dated 8th April 1930 from the said Joseph Kirkpatrick to Broderick Cruse and Joseph Kirkpatrick as Tenants in Common of land within described Produced 15th April 1930 and entered 13th May 1930 at 2 o'clock in the afternoon As to land in this certificate this certificate is cancelled and new Certificate issued Vol. 4404 Fol. 242-243 REGISTRAR GENERAL.

B 963798

Notifications referred to

No. B 498655 APPLICATION BY TRANSMISSION Elizabeth Grant Moffat Kirkpatrick of West Hoxton near Liverpool Widow is now the registered Proprietors of the Land within described in pursuance of the above Application. Produced 24th April 1924 and entered 5th May 1924 at 12 o clock in the noon. REGISTRAR GENERAL.

No. B 498654 TRANSFER dated 10th January 1924 from the said Elizabeth Grant Moffat Kirkpatrick to Joseph Kirkpatrick of West Hoxton maintenance man of the land within described Produced 24th April 1924 and entered 5th May 1924 at 12 o'clock in the noon. REGISTRAR GENERAL.

B 498654

B 963798

3a 78—94

St. 907

CERTIFICATE OF TITLE.

(C.)

New South Wales.

REGISTER BOOK,

VOL. 1156 FOLIO 193

[*Reference to last Certificate.*]
[*Vol. 1101 — Folio 115*]

CANCELLED

Selwood Smyth of *Woollahra, Engineer*

TRANSFEREE under Instrument of Transfer ~~from~~ *Numbered 235488 from the New Oriental Bank Corporation Limited, Mortgagee exercising power of sale* ~~numbered~~ *is* now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon in *That* piece of land situated *at Hoxton Park* in the Parish of *Cabramatta*, and County of *Cumberland*, containing *Three acres*, or thereabouts, as shown on the Plan hereon, and therein edged red, being Lot *Three hundred and seven* ~~of Section~~ on a Plan deposited in the Land Titles Office, Sydney, numbered *2475 and part of Eight hundred acres delineated in the public maps of the said parish deposited in the office of the Surveyor General, Originally granted to Thomas Sherrop Arnos by Crown Grant dated the thirteenth day of January one thousand eight hundred and eighteen* ~~x 57.1.1~~

IN witness whereof, I have hereunto signed my name and affixed my Seal, this *Ninth* day of *March* one thousand eight hundred and ninety *five*

Signed the *9th* day of *March* 1895,
in the presence of *Cuthbertson*

Registrar Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

NOTIFICATION REFERRED TO.

No. *A 197258* APPLICATION BY TRANSMISSION
Eliza Smyth of Kuala Kubu, Selangor, Federated Malay States, Widow, is now the registered Proprietors of the Land within described in pursuance of the above Application. Produced *27th August* 1915 and entered *6th December* 1915 at *10* o'clock in the *fore* noon

R. W. Williams
REGISTRAR GENERAL.

REGISTRAR GENERAL NEW SOUTH WALES

SIXTEENTH AVENUE

306	307 (400 lks; 150 lks; 150 lks; 400 lks; *3 ac*)	308
346	345	344

Scale 4 Chains to an Inch

A197258 R
A197258 T. P.

No. 9777 Power of Attorney dated 15th December 1911
from the said Eliza Smyth to Gustav Hugo
Leibius Solicitor Ronald Woodhouse Bennett Clerk
Morrice Alexander Black Solicitor and Norman
Hardress McCarthy Clerk all of Sydney
Produced and entered 6th December 1915
at 10 o'clock in the fore noon
REGISTRAR GENERAL

No. A 197259 TRANSFER dated 18th August 1915
from the said Eliza Smyth to John
Cleverly Flowers of near Liverpool
Orchardist
of the land within described
Produced and entered 6th December 1915
at 10 o'clock in the fore noon
REGISTRAR GENERAL.

No. A 507113 TRANSFER dated 21st March 1922.
from the said John Cleverly Flowers &
Charles Kirkpatrick of Morton Park
Water Board Employees
of the land within described.
Produced and entered 26th April 1922.
at 23 mins past 12 o'clock in the after noon.
REGISTRAR GENERAL

No. B 498655 APPLICATION BY TRANSMISSION
Elizabeth Grant Moffat Kirkpatrick of West
Heaton near Liverpool Widow
is now the registered
Proprietors of the Land within described in pursuance of the above
Application. Produced 24th April 1924 and
entered 5th May 1924
at 12 o'clock in the noon.
REGISTRAR GENERAL.

No. B 498654 TRANSFER dated 10th January 1924
from the said Elizabeth Grant Moffat Kirkpatrick
& Joseph Kirkpatrick of West Heaton
Married Man
of the land within described
Produced 24th April 1924 and entered 5th May 1924
at 12 o'clock in the noon.
REGISTRAR GENERAL.

No. B 963798 TRANSFER dated 4th April 1930.
from the said Joseph Kirkpatrick & Frederick
Cecil and Joseph Kirkpatrick as
Tenants in Common
of the land within described
Produced 15th April 30
entered 13th May 1930 and
at 2 o'clock in the after noon.
As to land in this transfer
this Certificate is cancelled
and new Certificate issued
Vol. 4404 Fol. 242-243 REGISTRAR GENERAL.

APPENDIX D

Regulatory Search Results

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for:LGA: Liverpool City Council

Matched 12 notices relating to 2 sites.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
Chipping Norton	85-107 Alfred Road	Australian Chemical Refiners	3 current
Moorebank	Bapaume Road	ABB Australia	1 current and 8 former

Page 1 of 1

18 June 2014

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: **General Search** with the following criteria

Suburb - HOXTON PARK

returned 18 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
11288	ENDEAVOUR ENERGY	490 Hoxton Park Road, HOXTON PARK, NSW 2171	POEO licence	No longer in force	08 Jan 2001
1019574	ENDEAVOUR ENERGY	490 Hoxton Park Road, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	13 Aug 2002
1035071	ENDEAVOUR ENERGY	490 Hoxton Park Road, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	03 Mar 2004
949	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	POEO licence	Surrendered	23 Jan 2001
1012925	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	05 Mar 2002
1026549	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	17 Apr 2003
1030774	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	24 Oct 2003
1032659	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	26 Nov 2003
1044279	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	07 Feb 2005
1076811	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	22 Aug 2007
1079829	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	08 Nov 2007
1086713	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	12 Nov 2008
1102120	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	16 Jun 2009
1107956	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	21 Oct 2009
1114058	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	12 Jul 2010
11323	VISY BOARD PROPRIETARY LIMITED	UNIT 10/10 LYN PARADE, HOXTON PARK, NSW 2171	POEO licence	No longer in force	22 Mar 2001
1034424	VISY BOARD PROPRIETARY LIMITED	UNIT 10/10 LYN PARADE, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	04 Mar 2004
1047997	VISY BOARD PROPRIETARY LIMITED	UNIT 10/10 LYN PARADE, HOXTON PARK, NSW 2171	s.58 Licence Variation	Issued	24 May 2005

Connect Fee

Wet Pub

18 June 2014

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: **General Search** with the following criteria

Suburb - West Hoxton

returned 2 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
20202	SYDNEY WATER CORPORATION	Lowry Ave, WEST HOXTON, NSW 2171	POEO licence	Issued	11 Jan 2013
1519590	SYDNEY WATER CORPORATION	Lowry Ave, WEST HOXTON, NSW 2171	s.80 Surrender of a Licence	Pending	20 Jan 2014

18 June 2014

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: **General Search** with the following criteria

Suburb - AUSTRAL

returned 1 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
1789	SCALABRINI VILLAGE LTD	65 EDMONDSON AVE, AUSTRAL, NSW 2171	POEO licence	Surrendered	25 Sep 2000

18 June 2014

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: **General Search** with the following criteria

Suburb - HORNINGSEA PARK

returned 0 result

Search Again

Liverpool city council
creating our future together

PLANNING CERTIFICATE UNDER SECTION 149
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Ref.: 147622023:16874
Ppty: 8630

Cert. No.: 7011
Page No.: 1

Applicant:
GOLDER ASSOCIATES PTY LTD
124 PACIFIC HWY
ST LEONARDS NSW 2065

Receipt No.: 2778561
Receipt Amt.: 133.00
Date: 25-Jun-2014

Property Desc: **195 FIFTEENTH AVENUE, WEST HOXTON NSW 2171**
LOT 346 DP 2475

PART A
PRESCRIBED INFORMATION PROVIDED PURSUANT TO SECTION 149(2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

NOTE: The following information is provided pursuant to Section 149(2) of the Environmental Planning and Assessment Act (EP&A Act) 1979 as prescribed by Schedule 4 of the Environmental Planning and Assessment Regulation (EP&A Regulation) 2000 and is applicable to the subject land as of the date of this certificate.

The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation, 1998.

(1) Names of relevant planning instruments and DCPs

(1) The name of each environment planning instrument that applies to the carrying out of Development on the land is/are listed below: -

Local Environmental Plans (LEPs)

Not applicable

State Environmental Planning Policies (SEPPs)

State Environmental Planning Policy No. 1 – Development Standards
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
State Environmental Planning Policy No. 44 – Koala Habitat
State Environmental Planning Policy No. 50 – Canal Estate Development
State Environmental Planning Policy No. 55 – Remediation of Land
State Environmental Planning Policy No. 62 – Sustainable Aquaculture
State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy – (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy – (Infrastructure) 2007
State Environmental Planning Policy – (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy – (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy – (Western Sydney Parklands) 2009
State Environmental Planning Policy (State and Regional Development) 2011

Deemed State Environmental Planning Policies (Deemed SEPPs)

Sydney Regional Environmental Plan No. 20 – Hawkesbury – Nepean River (No. 2 – 1997)
This plan applies to all the land within the Hawkesbury – Nepean River catchment. This plan aims to protect the environment of the Hawkesbury – Nepean River system by ensuring that the impacts of future land uses are considered in regional context. The plan provides specific planning policies and strategies and development controls for specific land use.

Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment
This plan aims to preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments, to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment and to ensure that development achieves the environmental objectives for the Catchment.

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft Local Environmental Plans (LEPs)

Not Applicable

Draft State Environmental Planning Policies (SEPPs)

Not Applicable

(3) The name of each development control plan that applies to the carrying out of development on the land.

Not Applicable

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENIVIRONMENTAL PLANS
For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

Not Applicable

2A. Zoning and land use under State Environmental Planning Policy) Sydney Region Growth Centres 2006

Not Applicable

3. COMPLYING DEVELOPMENT

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Not Applicable

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

Not applicable

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Not applicable

4. Coastal Protection Act 1979

There has been no notification from the Department of Public Works that the land is subject to the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

4A Certain information relating to beaches and coasts

(1) In relation to a coastal council—whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

Not Applicable

(2) In relation to a coastal council:

(a) whether the council has been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed—whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council—whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Not Applicable

5. Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

The land is not a mine subsidence district.

6. Road Widening and Road Realignment

Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) any environmental planning instrument, or
(c) any resolution of the council.

The land is not affected by any road widening or road realignment.

7. Council and Other Public Authority Policies on Hazard Risk Restrictions

The policies applying to the land from Council and other Public Authorities regarding hazard risk restrictions is/are outlined below: -

(a) Council Policy – Other Risks

Land Slip

The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of land slip.

Bushfire

The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate which restricts the development of the land because of the likelihood of bushfire.

Tidal Inundation

The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of tidal inundation.

Subsidence

The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of tidal inundation.

Acid Sulphate Soil

The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of acid sulphate soil.

Other Risks

The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of any other risk.

(b) Public Authority Policies
The land is not affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in the planning certificates issued by the Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

7A. Flood Related Development Controls Information
Whether or not development on that land or part of the land for purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

(1) Whether or not development on that land or part of the land for purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Development on all of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings is not subject to flood related development controls.

(2) Whether or not development on that land or part of the land for any other purpose

is subject to flood related development controls.

Development on all of the land for any other purpose is not subject to flood related development controls.

(3) Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

Whether or not the development on that land or part of the land for any other purpose is subject to flood related development controls

8. Land Reserved for Acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

Nil

No environmental planning instrument or proposed environmental planning instrument applying to the land provides for the acquisition of the land by a public authority.

9. Contribution Plans

The name of each contribution plan applying to the land is/are outlined below: -

Liverpool Contributions Plan 2009

9A Biodiversity certified land

If the land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995), a statement to that effect.

The land is not biodiversity certified land within the meaning of Part 7AA of the Threatened Species Conservation Act (1995).

10. Bio banking agreements

If the land is land to which a bio banking agreement under Part 7A of the Threatened Species

Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Director-General of the Department of Environment, Climate Change and Water).

The land is not land to which a biobanking agreement under part 7A of the *Threatened Species Conservation Act 1995* relates.

11. Bushfire Prone Land

None of the land is bush fire prone land as defined in the Environmental Planning and Assessment Act 1979.

12. Property Vegetation Plans

If the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

The land is not land to which a property vegetation plan relates, as all land in the Liverpool Local Government Area is excluded from the operation of the *Native Vegetation Act 2003.*

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

Council has not been notified of an order made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No such direction applies to the land.

15. Site Compatibility Certificates and Conditions for Seniors Housing

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies:

a statement of whether there is a current site compatibility certificate (seniors housing), of

which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) the period for which the certificate is current, and
(ii) that a copy may be obtained from the head office of the Department of Planning, and

Council is not aware of a current site compatibility certificate (seniors housing) on the land a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

There have been no such terms imposed as a condition of consent to development on the land.

16. Site Compatibility Certificates for Infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

the period for which the certificate is valid, and
(b) that a copy may be obtained from the head office of the Department of Planning.

Council is not aware of a current site compatibility certificate (infrastructure) on the land.

17. Site compatibility certificates and conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is current, and
(b) that a copy may be obtained from the head office of the Department of Planning.

Council is not aware of a current site compatibility certificate (affordable rental housing) on the land.

(2) A statement setting out any terms of a kind referred to in clause 17 (1) or 38 (1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

There have been no such terms imposed as a condition of consent to development on the land.

18. Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

No such plan applies to the land.

(2) The date of any subdivision order that applies to the land.

No subdivision order applies to the land

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19. Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

Council is not aware of a current site verification certificate on the land.

Note. A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

(b) the date on which the certificate ceases to be current (if any), and

Not Applicable

(c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

Not Applicable

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

Not Applicable

that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

Not Applicable

Note. Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of that Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

No such exemption or authorisation applies to the land.

PART B
ADDITIONAL INFORMATION PROVIDED PURSUANT
TO SECTION 149(5) OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

1. Threatened Species Conservation Act

It is advisable for any application intending to purchase and/or develop land within the Liverpool Local Government Area to approach Council to ascertain if the requirements of the Threatened Species Act, 1995 are likely to apply to their land.

If the land has native vegetation of any sort (ie trees, shrubs, ground covers etc), has recently been cleared or is vacant land, it may have impediments to development under the Threatened Species Act, 1995.

This notation should be read in conjunction with State Environmental Planning Policy – (Western Sydney Parklands) 2009, and the Threatened Species Act, 1995.

Enquiries should be directed to Council's Department of Environment and Community.

2. Tree Preservation Provision
The land is subject to a tree preservation provision under the SEPP (Western Sydney Parklands) 2009.

3. Controlled Access Road
The land does not have a boundary to a controlled access road under the provisions of the Liverpool Local Environmental Plan 2008.

4. Other Information in Relation to Water
Nil

5. Sydney Water Corporation
Nil

6. Foreshore Building Line
Nil

7. Contaminated Land
Nil

8. Airport Noise Affectation
Badgerys Creek Airport
Nil

9. Airport Acquisition
Nil

10. Environmentally Significant Land
Nil

11. Archaeological Management Plan
Nil

12. Unhealthy Building Land Proclamation
Nil

JOBrien

Mrs T. O'Brien
Manager - Strategic Planning
Liverpool City Council

For further information, please contact
CALL CENTRE – 1300 36 2170

WorkCover NSW
92–100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
Customer Service Centre 13 10 50
DX 731 Sydney workcover.nsw.gov.au

Our Ref: D14/087032
Your Ref: Shane Doyle

9 July 2014

Attention: Shane Doyle
Golder Associates Pty Ltd
124 Pacific Hwy
St Leonards NSW 2065

Dear Mr Doyle,

RE SITE: 195 Fifteenth Ave West Hoxton NSW

I refer to your site search request received by WorkCover NSW on 2 July 2014 requesting information on licences to keep dangerous goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover NSW has not located any records pertaining to the above mentioned premises.

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Team

APPENDIX E

Analytical Results Summary Tables

147622023

Table 1: Summary Analytical Results - Sediment Samples

						Sample ID	Location 1 - 001	Location 1 - 002	Location 2 - 001
						Description	Sediment	Sediment	Sediment
						Sample Date	25/06/2014	25/06/2014	25/06/2014
						Batch	112131	112131	112131
			NEPM Soil Investigation Levels[1]						
Analyte	**Units**	**LOR**	**HILs - Commercial / industrial land use**	**HSL - D Vapour Instrusion Sand 0-1m**	**EILs / ESL - Commercial and Industrial Coarse Grain**	**Management limits Commercial / Industrial Coarse Grain**			
TRH (NEPM 2013)									
C6 - C10 Fraction		25				700	<25	<25	<25
C6 - C10 Fraction minus BTEX (F1)	mg/kg	25		260	215^		<25	<25	<25
>C10 - C16 Fraction	mg/kg	50				1000	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50		NL/20,000+	170^		<50	<50	<50
>C16 - C34 Fraction (F3)	mg/kg	100			1700	3500	<100	<100	<100
>C34 - C40 Fraction (F4)	mg/kg	100			3300	10000	<100	<100	<100
BTEX									
Benzene	mg/kg	0.2		3	75		<0.2	<0.2	<0.2
Toluene	mg/kg	0.5		NL/99,000+	135		<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	1		NL/27,000+	165		<1	<1	<1
meta- & para-Xylene	mg/kg	2		230/81,000*	95		<2	<2	<2
ortho-Xylene	mg/kg	1					<1	<1	<1
Inorganics									
Arsenic	mg/kg	4	3000		160		**6**	**5**	**9**
Cadmium	mg/kg	0.4	900				<0.4	<0.4	<0.4
Chromium	mg/kg	1	3600*				**15**	**21**	**26**
Copper	mg/kg	1	240000				**22**	**38**	**21**
Lead	mg/kg	1	1500		1800		**16**	**20**	**20**
Nickel	mg/kg	1	6000				**9**	**17**	**11**
Zinc	mg/kg	1	400000				**41**	**68**	**52**
Mercury	mg/kg	0.1	730[2]/180[3]				<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons									
Naphthalene	mg/kg	0.1		NL/11,000+	370		<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1					<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1					<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1					<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1					<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1					<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1					<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1					<0.1	<0.1	<0.1
Benz(a)anthracene	mg/kg	0.1					<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1					<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.2					<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.05			1.4		<0.05	<0.05	<0.05
Indeno(1.2.3.cd)pyrene	mg/kg	0.1					<0.1	<0.1	<0.1
Dibenz(a.h)anthracene	mg/kg	0.1					<0.1	<0.1	<0.1
Benzo(g.h.i)perylene	mg/kg	0.1					**0.1**	<0.1	<0.1
Benzo(a)pyrene TEQ	mg/kg	0.5	40				<0.5	<0.5	<0.5
Total +ve	mg/kg	0.5	4000				**0.11**	-	-
Organochlorine Pesticides									
HCB	mg/kg	0.1	80				<0.1	<0.1	<0.1
alpha-BHC	mg/kg	0.1					<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	0.1					<0.1	<0.1	<0.1
beta-BHC	mg/kg	0.1					<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	50				<0.1	<0.1	<0.1
delta-BHC	mg/kg	0.1					<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1					<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	0.1	530				<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	0.1					<0.1	<0.1	<0.1
Endosulfan I	mg/kg	0.1	2000				<0.1	<0.1	<0.1
Endosulfan II	mg/kg	0.1					<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	45				<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1					<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	100				<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	3600				<0.1	<0.1	<0.1
pp-DDD	mg/kg	0.1					<0.1	<0.1	<0.1
pp-DDT	mg/kg	0.1			640		<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1					<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	0.1					<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	2500				<0.1	<0.1	<0.1
Organophosphorus Pesticides									
Diazinon	mg/kg	0.1					<0.1	<0.1	<0.1
Dimethoate	mg/kg	0.1					<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	0.1					<0.1	<0.1	<0.1
Ronnel	mg/kg	0.1					<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	0.1	2000				<0.1	<0.1	<0.1
Fenitrothion	mg/kg	0.1					<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	0.1					<0.1	<0.1	<0.1
Ethion	mg/kg	0.1					<0.1	<0.1	<0.1

Notes

-: Not Analysed

mg/kg: Milligram per kilogram

TRH: Total recoverable hydrocarbons

BTEXN: Benzene, toluene, ethylbenzene, xylene and naphthalene

LOR: Limits of Reporting

* Criteria for chromium (VI) adopted for total chromium.

^ ESLs are of low reliability except where indicated by ^ which indicates the ESL is of moderate reliability

+ HSLs for direct contact where HSL for vapour intrusion is non limiting (NL)

Criteria for course grained soils have been adopted as a conservative measure.

1: NEPC (2013), National Environmental Protection (Assessment of Site Contamination) Measure 1999. Guideline on the Investigation Levels for Soil and Groundwater, Health Based Investigation Levels (HILs) F (for commercial and industrial sites).

2: denotes criteria for inorganic mercury

3: denotes criteria for methyl mercury

Exceeds HILs - Commercial / industrial land use

Exceeds HSL - D Vapour Instrusion Sand 0-1m

Exceeds EIL / ESL - Commercial and Industrial Coarse Grain

Exceeds Management limits Commercial / Industrial Coarse Grain

Exceeds multiple critera

Prepared By: RB 17/7/2014

Checked By: SPD 17/7/2014

147622023

Table 2: Summary Analytical Results - Water Samples

Sample ID	Location 1 - 001	Location 2 - 001
Description	Dam water	Dam water
Sample Date	25/06/2014	25/06/2014
Batch	112131	112131

Analyte	Units	LOR	ANZECC 95% Fresh Guidelines		
TRH (NEPM 2013)					
C6 - C10 Fraction	µg/L	10		<10	<10
C6 - C10 Fraction minus BTEX (F1)	µg/L	10		<10	<10
>C10 - C16 Fraction	µg/L	50		<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	50		<50	<50
>C16 - C34 Fraction (F3)	µg/L	100		<100	**310**
>C34 - C40 Fraction (F4)	µg/L	100		<100	<100
BTEX					
Benzene	µg/L	1	950	<1	<1
Toluene	µg/L	1		<1	<1
Ethylbenzene	µg/L	1		<1	<1
meta- & para-Xylene	µg/L	2	200*	<2	<2
ortho-Xylene	µg/L	1	350	<1	<1
Inorganics					
Arsenic	µg/L	1	13^	**1**	**1**
Cadmium	µg/L	0.1	0.2	<0.1	<0.1
Chromium	µg/L	1	1**	<1	<1
Copper	µg/L	1	1.4	<1	<1
Lead	µg/L	1	3.4	<1	<1
Nickel	µg/L	1	11	<1	<1
Zinc	µg/L	1	8.0	**1**	<1
Mercury	µg/L	0.05	0.6	<0.05	<0.05
Polycyclic Aromatic Hydrocarbons					
Naphthalene	µg/L	1	16	<1	<1
Acenaphthylene	µg/L	1		<1	<1
Acenaphthene	µg/L	1		<1	<1
Fluorene	µg/L	1		<1	<1
Phenanthrene	µg/L	1		<1	<1
Anthracene	µg/L	1		<1	<1
Fluoranthene	µg/L	1		<1	<1
Pyrene	µg/L	1		<1	<1
Benz(a)anthracene	µg/L	1		<1	<1
Chrysene	µg/L	1		<1	<1
Benzo(b+k)fluoranthene	µg/L	2		<2	<2
Benzo(a)pyrene	µg/L	1		<1	<1
Indeno(1.2.3.cd)pyrene	µg/L	1		<1	<1
Dibenz(a.h)anthracene	µg/L	1		<1	<1
Benzo(g.h.i)perylene	µg/L	1		<1	<1
Benzo(a)pyrene TEQ	µg/L	5		<5	<5
Total +ve	µg/L	1		-	-
Organochlorine Pesticides					
HCB	µg/L	0.2		<0.2	<0.2
alpha-BHC	µg/L	0.2		<0.2	<0.2
gamma-BHC (Lindane)	µg/L	0.2	0.2	<0.2	<0.2
beta-BHC	µg/L	0.2		<0.2	<0.2
Heptachlor	µg/L	0.2	0.09	<0.2	<0.2
delta-BHC	µg/L	0.2		<0.2	<0.2
Aldrin	µg/L	0.2		<0.2	<0.2
Heptachlor Epoxide	µg/L	0.2		<0.2	<0.2
gamma-Chlordane	µg/L	0.2	0.08	<0.2	<0.2
alpha-Chlordane	µg/L	0.2		<0.2	<0.2
Endosulfan I	µg/L	0.2	0.2	<0.2	<0.2
Endosulfan II	µg/L	0.2		<0.2	<0.2
pp-DDE	µg/L	0.2		<0.2	<0.2
Dieldrin	µg/L	0.2		<0.2	<0.2
Endrin	µg/L	0.2	0.02	<0.2	<0.2
pp-DDD	µg/L	0.2		<0.2	<0.2
pp-DDT	µg/L	0.2	0.01	<0.2	<0.2
Endrin Aldehyde	µg/L	0.2		<0.2	<0.2
Endosulfan Sulphate	µg/L	0.2		<0.2	<0.2
Methoxychlor	µg/L	0.2		<0.2	<0.2
Organophosphorus Pesticides					
Diazinon	µg/L	0.2	0.01	<0.2	<0.2
Dimethoate	µg/L	0.2	0.15	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	0.2		<0.2	<0.2
Ronnel	µg/L	0.2		<0.2	<0.2
Chlorpyriphos	µg/L	0.2	0.01	<0.2	<0.2
Fenitrothion	µg/L	0.2	0.2	<0.2	<0.2
Bromophos-ethyl	µg/L	0.2		<0.2	<0.2
Ethion	µg/L	0.2		<0.2	<0.2

Notes

-: Not analysed

µg/L: Microgram per litre

TPH: Total Petroluem Hydrocarbons

BTEX: Benzene, toluene, ethylbenzene, xylene

LOR: Limits of reporting

* criteria for para-xylene

** criteria for chromium VI

^ criteria for arsenic V

Exceeds ANZECC 95% Freshwater Criteria

Prepared By: RB 17/07/2014

Checked By: SPD 17/7/2014

147622023

Table 3: Acid Sulfate Soils Analysis Results

Sample ID	TP07	TP07	TP10
Depth	0.1-0.3	0.3-0.5	0.3-0.5
Soil Type	Sandy Clay	Clay	Clay
Sample Date	7/07/2014	7/07/2014	7/07/2014
Batch	112656	112656	112656

Analyte	Units	LOR	ASSMAC Assessment Guidelines 1-1000 tonnes disturbed, medium texture	ASSMAC Assessment Guidelines 1-1000 tonnes disturbed, fine texture			
pH kcl	pH units				4.7	4.6	5.3
s-TAA pH 6.5	%w/w S	0.01			0.02	0.03	<0.01
TAA pH 6.5	moles H+/t	5	36	62	10	17	5
Chromium Reducible Sulfur	%w/w	0.005	0.06	0.1	<0.005	<0.005	<0.005
a-Chromium Reducible Sulfur	moles H+/t	3			<3	<3	<3
S_{KCl}	%w/w S	0.005			0.058	0.061	0.049
ANC_{BT}	% CaCO3	0.05			<0.05	<0.05	<0.05
s-ANC_{BT}	%w/w S	0.05			<0.05	<0.05	<0.05
s-Net Acidity	%w/w S	0.01			0.02	0.03	0.01
a-Net Acidity	moles H+/t	10			12	19	<10
Liming rate	kg CaCO3/t	0.75			0.93	1.4	<0.75
a-Net Acidity without ANCE	moles H+/t	10			12	19	<10
Liming rate without ANCE	kg CaCO3/t	0.75			0.93	1.4	<0.75

Notes

ASSMAC Assessment Guidelines 1-1000 tonnes disturbed, medium texture

ASSMAC Assessment Guidelines 1-1000 tonnes disturbed, fine texture

Prepared By: RB 17/07/2014

Checked By: SPD 17/7/2014

147622023

Table 4: Asbestos Analysis Results

Sample ID	Fibro1_26/06/14	Fibro2_03/07/14	Pit2_030714	Pit3_030714
Depth	Not applicable	Not applicable	Fill material	Fill material
Sample Date	26/06/2014	3/07/2014	3/07/2014	3/07/2014
Batch	112755	112755	112755	112755

Analyte	**Units**	**LOR**				
Sample Description	-	-	Grey compressed fibre cement material	Grey fibre cement material	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Sample mass / dimension tested	g		50x40x5mm	75x55x5mm	Approx 40g	Approx 40g
Asbestos ID	g/kg	0.1	Chrysotile asbestos detected, Amosite asbestos detected	Chrysotile asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	-	-	-	No respirable fibres detected	No respirable fibres detected

Notes

-: Not Analysed

Prepared By: RB 17/07/2014

Checked By: SPD 17/7/2014

DATA VALIDATION SUMMARY SHEET (Sydney)

Project Name:	**West Hoxton**	**Project Number:**	**147622023**
Primary Laboratory:	**Envirolab**	**Workorder Number:**	**112131**
Secondary Laboratory:	**-**	**Workorder Number:**	**-**
Date Sampled:	**25/06/2014**	**Sample Medium:**	**Sediment and Water**

Sample Information

Number of Primary Samples:	**5**	**Number of Triplicate Samples:**	**0**
Number of Duplicate Samples:	**0**	**Number of Other QAQC Samples:**	**0**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by field staff and laboratory personnel.
All requested analysis completed?	Y	
Samples received intact and chilled?	Y	Intact, cool, ice present.
Samples analysed within appropriate holding times?	Y	
Sample volumes sufficient for QC analysis?	Y	
Are there non-NATA accredited methods used?	N	
Chromatograms supplied as appropriate?	NA	
Laboratory reports signed by authorised personnel?	Y	

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method blank	All results below the LOR.

Trip Spike Information

Analyte	Spike Concentrations	Recovery Concentration	% Recovery	Comments
				No TS was prepared in this batch.

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
	LCS recoveries were within laboratory quality objectives.

Matrix Spike (MS) Analyses

Analyte Group	Comments
	MS recoveries were within the laboratory quality objectives.

Laboratory Duplicates (LD) Analyses

Analyte Group	Analyte(s)	Sample ID	Comments
			LD RPDs within the LOR based limits.

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
			No FD taken.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
			No FT taken.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
		Surrogate recoveries were within the data quality objectives.

Overall Comments

As stated by Envirolab:
For the determination of dissolved metals in sample 112131-5, the unpreserved sample was filtered through 0.45um filter at the lab due to the presence of colloids and/or sediment in the supplied HNO3 bottle.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Rita Bonetti**	**Checked By**	**Shane Doyle**
Date:	**4/07/2014**	**Date:**	**17/07/2014**

APPENDIX F

Laboratory Certificates and Chain of Custody Documentation

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 112131

Client:

Golder Associates Pty Ltd
124 Pacific Highway
St Leonards
NSW 2065

Attention: Ben Seaford

Sample log in details:

Your Reference:	**147622023, Fifteenth Ave, West Hoxton**
No. of samples:	2 waters, 3 soils
Date samples received / completed instructions received	25/06/14 / 25/06/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	2/07/14 / 1/07/14
Date of Preliminary Report:	Not Issued

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Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference:	UNITS	112131-1	112131-3	112131-4
Your Reference	----------	Location 1 - 001	Location 1 - 002	Location 2 - 001
Date Sampled	----------	25/06/2014	25/06/2014	25/06/2014
Type of sample		soil	soil	soil
Date extracted	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	28/06/2014	28/06/2014	28/06/2014
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	92	84

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	112131-1	112131-3	112131-4
Your Reference	----------	Location 1 - 001	Location 1 - 002	Location 2 - 001
Date Sampled	----------	25/06/2014	25/06/2014	25/06/2014
Type of sample		soil	soil	soil
Date extracted	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	26/06/2014	26/06/2014	26/06/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	97	95	95

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-1 Location 1 - 001 25/06/2014 soil	112131-3 Location 1 - 002 25/06/2014 soil	112131-4 Location 2 - 001 25/06/2014 soil
Date extracted	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	28/06/2014	28/06/2014	28/06/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.11	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	101	97

Organochlorine Pesticides in soil				
Our Reference:	UNITS	112131-1	112131-3	112131-4
Your Reference	----------	Location 1 - 001	Location 1 - 002	Location 2 - 001
Date Sampled	----------	25/06/2014	25/06/2014	25/06/2014
Type of sample		soil	soil	soil
Date extracted	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	27/06/2014	27/06/2014	27/06/2014
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	97	97

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-1 Location 1 - 001 25/06/2014 soil	112131-3 Location 1 - 002 25/06/2014 soil	112131-4 Location 2 - 001 25/06/2014 soil
Date extracted	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	27/06/2014	27/06/2014	27/06/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	97	97

Acid Extractable metals in soil				
Our Reference:	UNITS	112131-1	112131-3	112131-4
Your Reference	----------	Location 1 - 001	Location 1 - 002	Location 2 - 001
Date Sampled	----------	25/06/2014	25/06/2014	25/06/2014
Type of sample		soil	soil	soil
Date digested	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	26/06/2014	26/06/2014	26/06/2014
Arsenic	mg/kg	6	5	9
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	15	21	26
Copper	mg/kg	22	38	21
Lead	mg/kg	16	20	20
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	9	17	11
Zinc	mg/kg	41	68	52

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-1 Location 1 - 001 25/06/2014 soil	112131-3 Location 1 - 002 25/06/2014 soil	112131-4 Location 2 - 001 25/06/2014 soil
Date prepared	-	26/06/2014	26/06/2014	26/06/2014
Date analysed	-	27/06/2014	27/06/2014	27/06/2014
Moisture	%	33	35	55

vTRH(C6-C10)/BTEXN in Water			
Our Reference:	UNITS	112131-2	112131-5
Your Reference	----------	Location 1 - 001	Location 2 - 001
Date Sampled	----------	25/06/2014	25/06/2014
Type of sample		water	water
Date extracted	-	27/06/2014	27/06/2014
Date analysed	-	28/06/2014	28/06/2014
TRHC$_6$ - C$_9$	µg/L	<10	<10
TRHC$_6$ - C$_{10}$	µg/L	<10	<10
TRHC$_6$ - C$_{10}$ less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	94	102
Surrogate toluene-d8	%	105	94
Surrogate 4-BFB	%	114	108

svTRH (C10-C40) in Water			
Our Reference:	UNITS	112131-2	112131-5
Your Reference	----------	Location 1 - 001	Location 2 - 001
Date Sampled	----------	25/06/2014	25/06/2014
Type of sample		water	water
Date extracted	-	26/06/2014	26/06/2014
Date analysed	-	27/06/2014	27/06/2014
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	190
TRHC$_{29}$ - C$_{36}$	µg/L	<100	180
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	310
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100
Surrogate o-Terphenyl	%	117	95

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-2 Location 1 - 001 25/06/2014 water	112131-5 Location 2 - 001 25/06/2014 water
Date extracted	-	26/06/2014	26/06/2014
Date analysed	-	27/06/2014	27/06/2014
Naphthalene	µg/L	<1	<1
Acenaphthylene	µg/L	<1	<1
Acenaphthene	µg/L	<1	<1
Fluorene	µg/L	<1	<1
Phenanthrene	µg/L	<1	<1
Anthracene	µg/L	<1	<1
Fluoranthene	µg/L	<1	<1
Pyrene	µg/L	<1	<1
Benzo(a)anthracene	µg/L	<1	<1
Chrysene	µg/L	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2
Benzo(a)pyrene	µg/L	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	100	83

OCP in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-2 Location 1 - 001 25/06/2014 water	112131-5 Location 2 - 001 25/06/2014 water
Date extracted	-	26/06/2014	26/06/2014
Date analysed	-	26/06/2014	26/06/2014
HCB	µg/L	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Surrogate TCMX	%	102	96

OP Pesticides in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-2 Location 1 - 001 25/06/2014 water	112131-5 Location 2 - 001 25/06/2014 water
Date extracted	-	26/06/2014	26/06/2014
Date analysed	-	26/06/2014	26/06/2014
Diazinon	µg/L	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2
Surrogate TCMX	%	102	96

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	112131-2 Location 1 - 001 25/06/2014 water	112131-5 Location 2 - 001 25/06/2014 water
Date prepared	-	26/06/2014	26/06/2014
Date analysed	-	26/06/2014	26/06/2014
Arsenic-Dissolved	µg/L	1	1
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	<1	<1
Lead-Dissolved	µg/L	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	1	<1

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/06/2014	[NT]	[NT]	LCS-1	26/06/2014
Date analysed	-			28/06/2014	[NT]	[NT]	LCS-1	28/06/2014
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	112%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	112%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	112%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	115%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	110%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	111%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	114%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	106	[NT]	[NT]	LCS-1	106%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	[NT]	[NT]	LCS-1	26/06/2014
Date analysed	-			26/06/2014	[NT]	[NT]	LCS-1	26/06/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	117%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	138%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	75%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	117%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	138%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	75%
Surrogate o-Terphenyl	%		Org-003	95	[NT]	[NT]	LCS-1	109%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	[NT]	[NT]	LCS-2	26/06/2014
Date analysed	-			28/06/2014	[NT]	[NT]	LCS-2	28/06/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	76%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	78%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	78%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	76%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	78%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	70%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-2	75%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	94	[NT]	[NT]	LCS-2	92%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	[NT]	[NT]	LCS-1	26/06/2014
Date analysed	-			27/06/2014	[NT]	[NT]	LCS-1	27/06/2014
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	78%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	97%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	86%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	87%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	84%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	84%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	95%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	87%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	74%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	106%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	95	[NT]	[NT]	LCS-1	90%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	[NT]	[NT]	LCS-1	26/06/2014
Date analysed	-			27/06/2014	[NT]	[NT]	LCS-1	27/06/2014
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	93%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	80%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	73%
Surrogate TCMX	%		Org-008	95	[NT]	[NT]	LCS-1	98%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			26/06/2014	[NT]	[NT]	LCS-1	26/06/2014
Date analysed	-			26/06/2014	[NT]	[NT]	LCS-1	26/06/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	99%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	103%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	101%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	101%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	96%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	104%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/06/2014	[NT]	[NT]	LCS-W1	27/06/2014
Date analysed	-			28/06/2014	[NT]	[NT]	LCS-W1	28/06/2014
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	86%
TRHC$_6$ - C$_{10}$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	86%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	93%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	94%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	82%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	76%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	92%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	106	[NT]	[NT]	LCS-W1	103%
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	LCS-W1	109%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W1	93%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	112131-2	26/06/2014 || 26/06/2014	LCS-W1	26/06/2014
Date analysed	-			26/06/2014	112131-2	27/06/2014 || 27/06/2014	LCS-W1	26/06/2014
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	112131-2	<50 || <50	LCS-W1	111%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	112131-2	<100 || <100	LCS-W1	103%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	112131-2	<100 || <100	LCS-W1	109%
TRH>C$_{10}$ - C$_{16}$	µg/L	50	Org-003	<50	112131-2	<50 || <50	LCS-W1	111%
TRH>C$_{16}$ - C$_{34}$	µg/L	100	Org-003	<100	112131-2	<100 || <100	LCS-W1	103%
TRH>C$_{34}$ - C$_{40}$	µg/L	100	Org-003	<100	112131-2	<100 || <100	LCS-W1	109%
Surrogate o-Terphenyl	%		Org-003	102	112131-2	117 || 100 || RPD: 16	LCS-W1	124%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	112131-2	26/06/2014 || 26/06/2014	LCS-W3	26/06/2014
Date analysed	-			27/06/2014	112131-2	27/06/2014 || 27/06/2014	LCS-W3	27/06/2014
Naphthalene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	101%
Acenaphthylene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	111%
Phenanthrene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	115%
Anthracene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	109%
Pyrene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	111%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	99%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	112131-2	<2 || <2	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	LCS-W3	112%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	112131-2	<1 || <1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	111	112131-2	100 || 85 || RPD: 16	LCS-W3	111%

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	112131-2	26/06/2014 || 26/06/2014	LCS-W1	26/06/2014
Date analysed	-			26/06/2014	112131-2	26/06/2014 || 26/06/2014	LCS-W1	26/06/2014
HCB	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	103%
gamma-BHC	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	98%
Heptachlor	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	102%
delta-BHC	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	102%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	104%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	105%
Dieldrin	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	107%
Endrin	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	105%
pp-DDD	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	106%
Endosulfan II	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	LCS-W1	112%
Methoxychlor	µg/L	0.2	Org-005	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Surrogate TCMX	%		Org-005	108	112131-2	102 || 97 || RPD: 5	LCS-W1	106%

QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	112131-2	26/06/2014 || 26/06/2014	LCS-W1	26/06/2014
Date analysed	-			26/06/2014	112131-2	26/06/2014 || 26/06/2014	LCS-W1	26/06/2014
Diazinon	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Dimethoate	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Ronnel	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	LCS-W1	107%
Fenitrothion	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	LCS-W1	98%
Bromophos ethyl	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	[NR]	[NR]
Ethion	µg/L	0.2	Org-008	<0.2	112131-2	<0.2 || <0.2	LCS-W1	102%
Surrogate TCMX	%		Org-008	108	112131-2	102 || 97 || RPD: 5	LCS-W1	107%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			26/06/2014	[NT]	[NT]	LCS-W2	26/06/2014
Date analysed	-			26/06/2014	[NT]	[NT]	LCS-W2	26/06/2014
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	95%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W2	95%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	87%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	98%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	95%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W2	96%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	92%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	92%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	112131-5	26/06/2014
Date analysed	-	[NT]	[NT]	112131-5	26/06/2014
$TRHC_{10}$ - C_{14}	µg/L	[NT]	[NT]	112131-5	83%
$TRHC_{15}$ - C_{28}	µg/L	[NT]	[NT]	112131-5	85%
$TRHC_{29}$ - C_{36}	µg/L	[NT]	[NT]	112131-5	95%
$TRH>C_{10}$ - C_{16}	µg/L	[NT]	[NT]	112131-5	83%
$TRH>C_{16}$ - C_{34}	µg/L	[NT]	[NT]	112131-5	85%
$TRH>C_{34}$ - C_{40}	µg/L	[NT]	[NT]	112131-5	95%
Surrogate o-Terphenyl	%	[NT]	[NT]	112131-5	96%

QUALITY CONTROL PAHs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	112131-5	26/06/2014
Date analysed	-	[NT]	[NT]	112131-5	27/06/2014
Naphthalene	µg/L	[NT]	[NT]	112131-5	70%
Acenaphthylene	µg/L	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	[NT]	[NT]	112131-5	73%
Phenanthrene	µg/L	[NT]	[NT]	112131-5	75%
Anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	[NT]	[NT]	112131-5	73%
Pyrene	µg/L	[NT]	[NT]	112131-5	74%
Benzo(a)anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	[NT]	[NT]	112131-5	65%
Benzo(b+k)fluoranthene	µg/L	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	[NT]	[NT]	112131-5	76%
Indeno(1,2,3-c,d)pyrene	µg/L	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	112131-5	74%

QUALITY CONTROL OCP in water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	112131-5	26/06/2014
Date analysed	-	[NT]	[NT]	112131-5	26/06/2014
HCB	µg/L	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	[NT]	[NT]	112131-5	83%
gamma-BHC	µg/L	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	[NT]	[NT]	112131-5	103%
Heptachlor	µg/L	[NT]	[NT]	112131-5	93%
delta-BHC	µg/L	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	[NT]	[NT]	112131-5	92%
Heptachlor Epoxide	µg/L	[NT]	[NT]	112131-5	89%
gamma-Chlordane	µg/L	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	[NT]	[NT]	112131-5	88%
Dieldrin	µg/L	[NT]	[NT]	112131-5	100%
Endrin	µg/L	[NT]	[NT]	112131-5	93%
pp-DDD	µg/L	[NT]	[NT]	112131-5	100%
Endosulfan II	µg/L	[NT]	[NT]	[NR]	[NR]
pp-DDT	µg/L	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	[NT]	[NT]	112131-5	114%
Methoxychlor	µg/L	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL OCP in water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Surrogate TCMX	%	[NT]	[NT]	112131-5	79%

Report Comments:

METALS_WLL_8_D: For the determination of dissolved metals in sample 112131-5, the unpreserved sample was filtered through 0.45um filter at the lab due to the presence of colloids and/or sediment in the supplied HNO3 bottle.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

SAMPLE CHAIN OF CUSTODY DOCUMENTATION

Sheet..... of.....

Project No:	147622023	**Lab Name:**	**Envirolab**
Site Location:	Fifteenth Avenue, West Hoxton	**Quote No.**	
Sampled By:	BMS	**Order No.:**	
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ■		
	36hrs ☐ 5 Days ☐ Date Required By:		
Delivery Option	HARD FAX ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ■ ESDAT ☐		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Phone: : (02) 9478 3900
Fax : (02) 9478 3901
Project Manager: Ben Seaford
Reviewed: BMS
Job Contact : Ben Seaford
Phone: Email: BSeaford@golder.com.au

Comments/Special Instructions:

Please send all deliverables to bseaford@golder.com.au

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE DEPTH	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	Combo 5b Water - TRH, BTEXN, PAHs, total metals, OCPs, OPPs	Combo 5b Soil - TRH, BTEXN, PAHs, metals, OCPs, OPPs
1,2	Location 1 - 001	NA	25/06/2014		1 Soil + Water 2			X	X
3	Location 1 - 002	NA	25/06/2014		Soil 3				X
4,5	Location 2 - 001	NA	25/06/2014		4 Soil + Water 5			X	X

Job No 112131
Date Received: 25.06.14
Time Received: 15.45
Received By: ISB
Temp: Cool/Ambient
Cooling: Ice/Pack
Security: Intact/Broken/None

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY		Golder Associates		
RECEIVED BY		ELS	25.06.14	15.45
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

RL3
SNT004
Feb 2011

THIS FORM IS TO BE SIGNED BY GOLDER STAFF; COURIER/S; LABORATORY ON RECEIPT OF SAMPLES.

SAMPLE CHAIN OF CUSTODY DOCUMENTATION

Sheet 1 of 1

Project No:	147612023	**Lab Name:**	ELS
Site Location:	HOXTON PARK	**Quote No.**	GOLDER
Sampled By:	JW	**Order No.:**	TBA
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ☑		
	36hrs ☐ 5 Days ☐ Date Required By:		
Delivery Option	HARD ☐ FAX ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ☑ ~~EDI~~ ■ EQUIS ■		

Comments/Special Instructions:

Also, email bseaford@golder.com.au

LAB ID	**SAMPLE ID**	**SAMPLE DATE**	**SAMPLE TIME**	**SAMPLE MATRIX**	**No CONTAINERS**	**Level of Contamination (Low/High/Unknown)**	SCr suite (Acid Extractable)
1	TP07_0.3-0.5	7/7/14		soil	1	L	X
2	TP07_0.1-0.3	↓		↓	↓	↓	X
3	TP10_0.3-0.5	↓		↓	↓	↓	X

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY		Golder Associates	7/7/14	1000
RECEIVED BY		ELS	7/7/14	15:30
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address	
Cool Box		Ambient			

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Phone: (02) 9478 3900
Fax: (02) 9478 3901
Project Manager: B. SEAFORD
Reviewed:
Job Contact: J. WARD
Phone: 0418690952 Email: jward@golder.com.au

Golder Associates

ANALYSIS REQUIRED

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 112656
Date Received: 7/7/14
Time Received: 15:30
Received by: JYH
Temp: Cool/Ambient 5.9°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

THIS FORM IS TO BE SIGNED BY GOLDER STAFF; COURIER/S; LABORATORY ON RECEIPT OF SAMPLES.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Golder Associates Pty Ltd
124 Pacific Highway
St Leonards NSW 2065

ph: 9478 3900
Fax: 9478 3901

Attention: Ivan Ward

Sample log in details:

Your reference:	**147622023, Hoxton Park**
Envirolab Reference:	**112656**
Date received:	07/07/2014
Date results expected to be reported:	**15/07/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	3 Soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	5.9
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 112656

Client:
Golder Associates Pty Ltd
124 Pacific Highway
St Leonards
NSW 2065

Attention: Ivan Ward

Sample log in details:

Your Reference:	**147622023, Hoxton Park**
No. of samples:	3 Soils
Date samples received / completed instructions received	07/07/2014 / 07/07/2014

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	15/07/14 / 15/07/14
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Chromium Suite				
Our Reference:	UNITS	112656-1	112656-2	112656-3
Your Reference	----------	TP07	TP07	TP10
Depth	----------	0.3-0.5	0.1-0.3	0.3-0.5
Date Sampled		7/07/2014	7/07/2014	7/07/2014
Type of sample		Soil	Soil	Soil
pH $_{kcl}$	pH units	4.6	4.7	5.3
s-TAA pH 6.5	%w/w S	0.03	0.02	<0.01
TAA pH 6.5	moles H^+/t	17	10	5
Chromium Reducible Sulfur	%w/w	<0.005	<0.005	<0.005
a-Chromium Reducible Sulfur	moles H^+/t	<3	<3	<3
S_{KCl}	%w/w S	0.061	0.058	0.049
ANC_{BT}	% $CaCO_3$	<0.05	<0.05	<0.05
s-ANC_{BT}	%w/w S	<0.05	<0.05	<0.05
s-Net Acidity	%w/w S	0.03	0.02	0.01
a-Net Acidity	moles H^+/t	19	12	<10
Liming rate	kg $CaCO_3$/t	1.4	0.93	<0.75
a-Net Acidity without ANCE	moles H^+/t	19	12	<10
Liming rate without ANCE	kg $CaCO_3$/t	1.4	0.93	<0.75

Method ID	Methodology Summary
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL Chromium Suite	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
pH_{kcl}	pH units		Inorg-068	[NT]	[NT]	[NT]	LCS-1	95%
s-TAA pH 6.5	%w/w S	0.01	Inorg-068	<0.01	[NT]	[NT]	[NR]	[NR]
TAA pH 6.5	moles H^+/t	5	Inorg-068	<5	[NT]	[NT]	LCS-1	96%
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	<0.005	[NT]	[NT]	LCS-1	105%
a-Chromium Reducible Sulfur	moles H^+/t	3	Inorg-068	<3	[NT]	[NT]	[NR]	[NR]
S_{HCl}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NR]	[NR]
S_{KCl}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	LCS-1	113%
S_{NAS}	%w/w S	0.005	Inorg-068	<0.005	[NT]	[NT]	[NR]	[NR]
ANC_{BT}	% $CaCO_3$	0.05	Inorg-068	<0.05	[NT]	[NT]	[NR]	[NR]
s-ANC_{BT}	%w/w S	0.05	Inorg-068	<0.05	[NT]	[NT]	[NR]	[NR]
s-Net Acidity	%w/w S	0.01	Inorg-068	<0.01	[NT]	[NT]	[NR]	[NR]
a-Net Acidity	moles H^+/t	10	Inorg-068	<10	[NT]	[NT]	[NR]	[NR]
Liming rate	kg $CaCO_3$/t	0.75	Inorg-068	<0.75	[NT]	[NT]	[NR]	[NR]
a-Net Acidity without ANCE	moles H^+/t	10	Inorg-068	<10	[NT]	[NT]	[NR]	[NR]
Liming rate without ANCE	kg $CaCO_3$/t	0.75	Inorg-068	<0.75	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

CHAIN OF CUSTODY

Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0290 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobe.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: Golder Associates	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Hoxton Park 147622023	ALS QUOTE NO.: GOLDBR	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: TBA		COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: B. SEAFORD	CONTACT PH: 94783900	OF: (1) 2 3 4 5 6 7	Other comment:
SAMPLER: I. WARD	SAMPLER MOBILE: 0418690992		
~~COC emailed to ALS?~~ (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed):			
Email Invoice to (will default to PM if no other addresses are listed):			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
IW	Prathistha		Kevin
DATE/TIME: 8/7/14	DATE/TIME: 8/7/14 13:15	DATE/TIME:	DATE/TIME: 8/7/14 13:00

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	Asbestos	Asbestos in soil							
				Depth										
1	Fibro1_26/06/14	26/6/14		Surface	1	X								
2	Fibro2_03/07/14	03/7/14		Surface	1	X								
3	Pit2_03/07/14	↓		0.0-0.5	1		X							
4	Pit3_03/07/14	↓		0.0-0.4	1		X							
														Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
					TOTAL									

ENVIROLAB

~~Envirolab Services~~
12 Ashley St
~~Chatswood NSW 2067~~
Ph: (02) 9910 6200

Job No: 112755
Date Received: 8/7/14
Time Received: 13:00
Received by: [signature]
Temp: ~~Cool~~/Ambient
Cooling: Ice/~~Icepack~~
Security: Intact/Broken/~~None~~

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Golder Associates Pty Ltd
124 Pacific Highway
St Leonards NSW 2065

ph: 9478 3900
Fax: 9478 3901

Attention: B Seaford

Sample log in details:

Your reference:	**147622023, Hoxton Park**
Envirolab Reference:	**112755**
Date received:	08/07/14
Date results expected to be reported:	**15/07/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	2 Materials, 2 Soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	NA
Cooling Method:	Not applicable
Sampling Date Provided:	

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 112755

Client:

Golder Associates Pty Ltd
124 Pacific Highway
St Leonards
NSW 2065

Attention: B Seaford

Sample log in details:

Your Reference:	**147622023, Hoxton Park**
No. of samples:	2 Materials, 2 Soils
Date samples received / completed instructions received	08/07/14 / 08/07/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	15/07/14 / 14/07/14
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Asbestos ID - soils			
Our Reference:	UNITS	112755-3	112755-4
Your Reference	----------	Pit2_030714	Pit3_030714
Date Sampled	----------	03/07/2014	03/07/2014
Type of sample		Soil	Soil
Date analysed	-	14/07/2014	14/07/2014
Sample mass tested	g	Approx 40g	Approx 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected

Asbestos ID - materials			
Our Reference:	UNITS	112755-1	112755-2
Your Reference	----------	Fibro1_26/06/14	Fibro2_03/07/14
Date Sampled	----------	26/06/2014	03/07/2014
Type of sample		Material	Material
Date analysed	-	10/07/2014	10/07/2014
Mass / Dimension of Sample	-	50x40x5mm	75x55x5mm
Sample Description	-	Grey compressed fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

Report Comments:

Asbestos ID was analysed by Approved Identifier: Lulu Guo, Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

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At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

Africa	+ 27 11 254 4800
Asia	+ 86 21 6258 5522
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
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124 Pacific Highway
St. Leonards, New South Wales 2065
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Golder Associates